GAS

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EMCO *Modern Production Methods... Make Modern Precision Meters*

THE advances made in the last few years in production methods have been applied to the manufacture of EMCO and Ironclad Domestic Gas Meters. Constantly maintained conditions of temperature and humidity throughout both manufacturing and proving operations have been added to accuracy in the machining of parts and precision in assembly. This strict manufacturing control eliminates many uncertainties and variations to assure the maintenance of accurate measurement and the elimination of excessive wear. The result of these advanced EMCO methods is a precise, perfectly fitted meter, capable of a long useful life.

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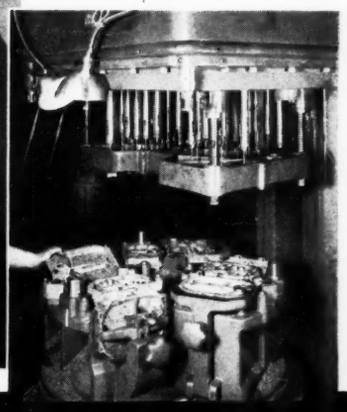
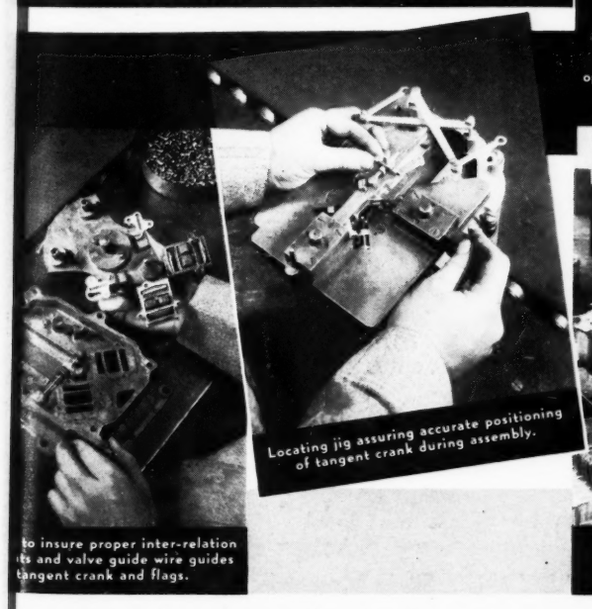
ral view of assembly and proving line showing moving or belt, assembly jigs and provers. Room is completely ditioned to assure uniform temperature and humidity.

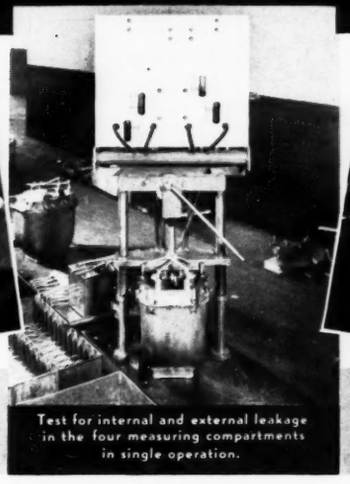


Automatic drilling of valve plate. Each operation completes 42 holes in valve plate accurately located by precision jig.



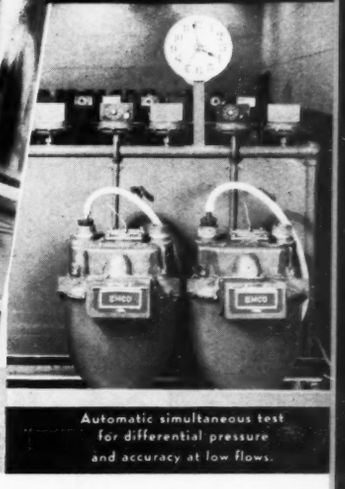
to insure proper inter-relation its and valve guide wire guides tangent crank and flags.

Locating jig assuring accurate positioning of tangent crank during assembly.



Test for internal and external leakage in the four measuring compartments in single operation.

Automatically controlled proving operation.



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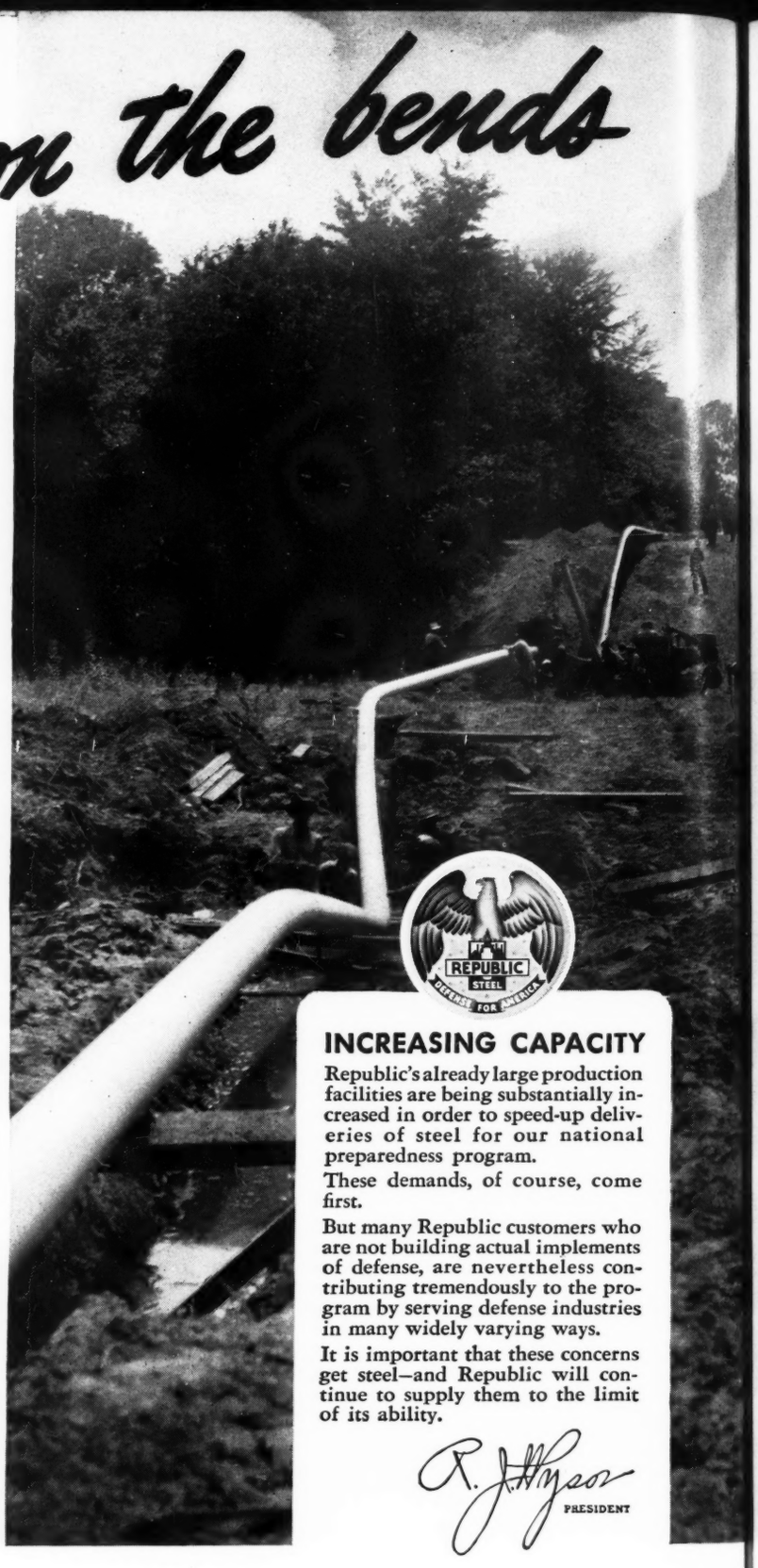

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These demands, of course, come first.

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PRESIDENT

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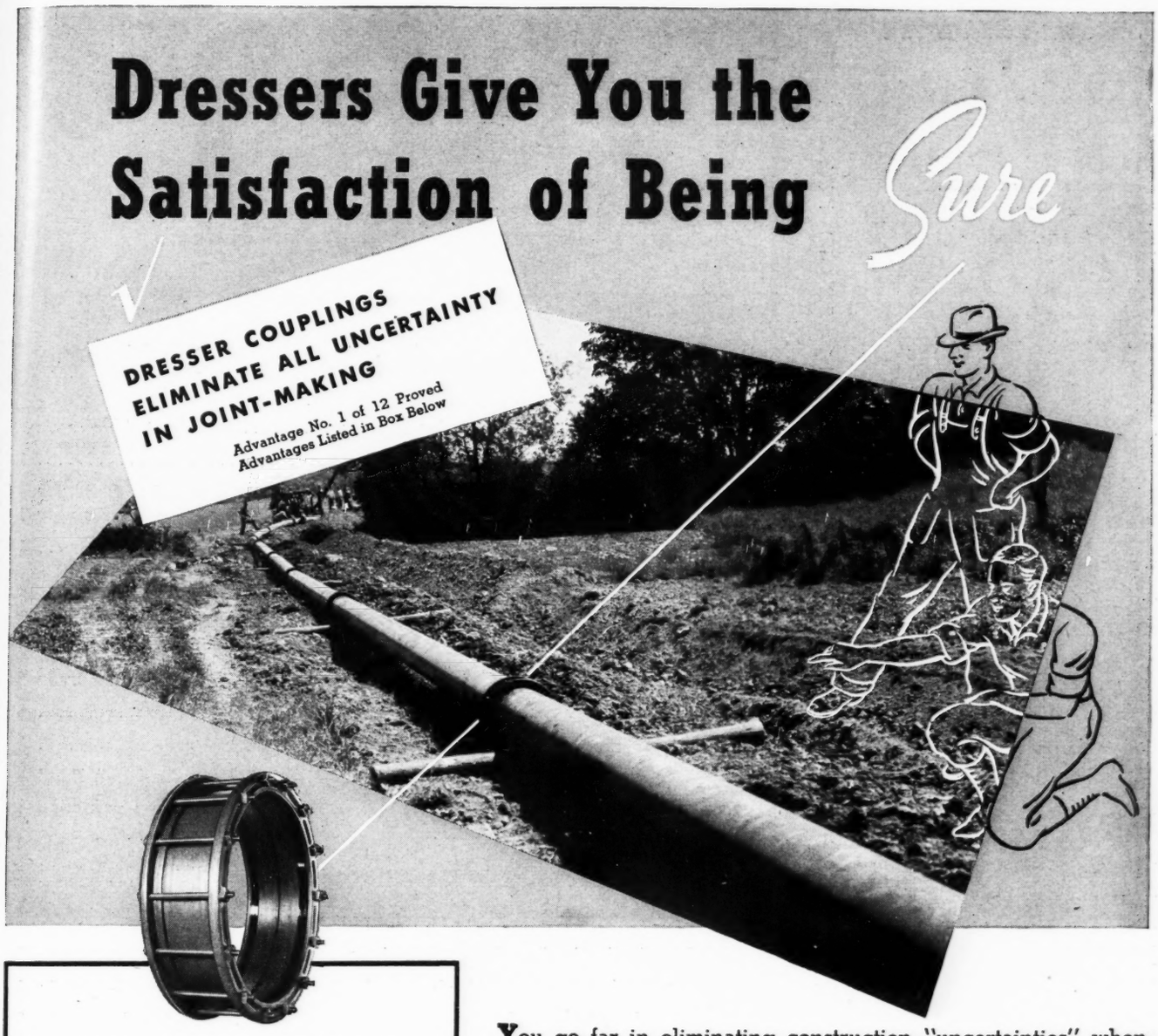

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2. Dresser Couplings permit use of local, untrained labor.
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8. Dresser Couplings permit pipe deflection for curves and grades with straight pipe.
9. Dresser Couplings reduce cost of supervision and inspection.
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12. Dresser Couplings eliminate health and fire hazards.

You go far in eliminating construction "uncertainties" when you specify Dresser Couplings. These fast, simple, flexible couplings speed joint-making, pre-assure uniformity and permanent tightness. Green labor, wind, rain, and bad weather conditions, difficult terrain, time-penalties—none of these are serious handicaps with Dressers.

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GAS

REG. U. S. PATENT OFFICE

Seventeenth Year of Publication

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GAS
AUGUST, 1941

GUEST Editorial

PRODUCTIVE DOLLARS

By ALBERT S. JOHNSON
President, Southern Union Gas Company
Dallas, Texas

A TREMENDOUS task of public education faces the gas industry. We must keep right on with our efforts to sell more gas, certainly; but that is not all we must do. It will not matter a great deal whether or not we sell much gas if rates are forced below the point at which they will meet operating costs, provide for the payment of drastically increased taxes, and return a reasonable profit to investors. It will not matter at all how much gas we may be able to sell if control of our business finally is taken from our hands as a result of the people getting firmly fixed in their minds the one-sided and inaccurate picture of the gas industry that is placed constantly before them in certain quarters.

We need to sell more gas, yes—but we must sell more than gas, more even than gas service. We must sell an *idea*—a whole series of ideas—to the people generally, including our customers.

The people now resent every dollar of interest or dividends paid to our bondholders or stockholders. Some regulatory bodies, purportedly acting as agents of the people, have little regard for the solemn contract rights of such investors. There is no use denying these things; they are true. They ought not to be true. The people must be taught to appreciate the benefits which investors in our companies have brought directly to them.

I give you an axiom: The productive capital invested in a region is among the most valuable assets of the people of that region, more important to them than to the very owners of it, for the chief benefits of productive capital are social in character.

That statement is directly applicable to the gas industry. A dollar invested in our industry is a productive dollar. Put to work in the construction of new properties or in the improvement of existing properties, it creates a value that serves an unending chain of people all over the region in which it is invested. The pay checks of labor are spent with merchants for food and clothing and all the other necessities of life. The merchants buy more goods in order to take care of the increased demand, thus providing additional employment and additional purchasing power. This dollar helps to create a business that thereafter employs a number of local residents. It brings the advantages of gas service to the people. It creates a new source of tax revenue for the many governmental taxing agencies. And the owner of that dollar gets no return at all until after the social gains resulting from his investment have been passed on in full measure to the people at large.

We know all this. None of it is news to gas company executives. We know it. But have we tried—really tried—to make the people generally understand it?

This is the kind of thing regarding which we need to educate the public. There are many other things: the nature of our corporate set-ups, the kind of people who as stockholders own our companies, the taxes we pay, the extent to which government regulation of our business has grown, the increased cost to us of such regulation, and so on.

Dignified silence is not going to get this job done. The gas industry must speak out, plainly and forthrightly. We know that the people get more than gas service from the development of the gas industry. They benefit and their communities benefit. Let's not be afraid to tell them so, using language that they cannot possibly fail to understand.

Photos by Robert Yarnall Richie

For everyone in 'forty-one it's

... in good hands

Skilled hands, these . . . employed throughout the processes of manufacture . . . and expert judgment reflected, too, by outstanding gas companies the country over—who consistently specify **AMERICAN** Tinned Steelcase Meters. ◇ Meters stand or fall by their performance in actual service. The service records of **AMERICAN** Tinned Steelcase Meters . . . from every viewpoint of accuracy, ruggedness, low-cost maintenance, and return upon investment . . . are written plainly in the long, distinguished roster of their gas company owners. ◇ Revised Catalog TG-4 is an invaluable guide to all the significant improvements made recently in tinned steelcase meter design and construction.

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AMERICAN
METER COMPANY
INCORPORATED (ESTABLISHED 1836)

1651

TINNED STEELCASE METERS

With Justice for All

WITHIN the next six months will 5000 or more small factories close their doors? Will there be widespread unemployment? A shortage of consumers' goods? A national curtailment of purchasing power?

Such concepts, in this day of all-out business activity, seem far removed, yet that these conditions may become actual—and soon—has been prophesied by not a few top-ranking industrialists and government officials.

Why? Essential materials, sheet steel, scrap iron and zinc, are not available in sufficient quantities to supply the national defense program, provide exports to those countries to whom the United States is rendering all-out aid, and leave enough to produce items essential to the public health, safety, and morale.

Concrete evidence of this condition is seen in a telegram sent last month by Leon Henderson, Administrator of Price Administration and Civilian Supply, to gas appliance manufacturers through which he called a meeting in Washington to discuss the problems of material shortage and curtailed production now facing the industry.

Yet, in the midst of this impending industrial chaos in America, there stands revealed a most interesting fact.

In England the manufacturers of gas appliances and equipment—in spite of their actual embroilment in war, in spite of their more dire need for essential defense materials—are able, according to advertisements published in recent issues of a British gas journal, not only to supply their domestic market, but to build up their export trade as well.

In 1940* the exports of steel, particularly to England and South American countries, were 45,851,000 net tons, or 17.7% of United States' total production. This was more than the tonnage taken by any one domestic steel-using industry. Figures on non-agricultural exports for the first four months of 1941, as compared with 1940, are found in *Business Week* for June 28:

Exports	*Value (Millions of Dollars) Four Months Ending April, 1940*	*1941*	*%Change*
Non-agricultural	1,073.1	1,238.9	+ 15.5
Machinery	212.6	241.0	+ 13.4
Iron and steel-mill products	140.9	155.2	+ 10.1
Aircraft, parts and accessories	88.2	190.6	+116.1
Petroleum and products	117.5	65.0	— 44.7
Automobiles, parts and accessories	96.1	107.1	+ 11.4
Chemicals and related products	68.1	79.9	+ 17.3
Nonferrous metals	76.4	43.3	— 43.3
Iron and steel, advanced manufactures	20.0	29.4	+ 47.0
Firearms and ammunition	3.9	47.9	+1128.2
Rubber and manufactures	12.9	18.6	+ 44.2

With such evidence in hand, the publisher of *GAS* sent the following telegram to Congressman Leland M. Ford:

TELEGRAM

Los Angeles, Calif.
July 15, 1941.

Honorable Leland M. Ford,
House of Representatives,
Washington, D. C.

MANUFACTURERS OF GAS EQUIPMENT AND APPLIANCES ARE THREATENED WITH THE NECESSITY OF CLOSING THEIR DOORS AND FORFEITING THEIR BUSINESS BECAUSE OF INABILITY TO PROCURE STEEL AND OTHER MATERIALS. SOME MANUFACTURERS ARE WORKING WITH ONLY A TWO OR THREE WEEKS' SUPPLY OF STEEL WITH NO ASSURANCE OF FUTURE DELIVERIES. IN SPITE OF THIS PRECARIOUS DOMESTIC SITUATION BRITISH MANUFACTURERS SEEM ABLE TO CONTINUE TO SUPPLY NOT ONLY THEIR DOMESTIC BUT THEIR EXPORT TRADE. PLEASE REFER TO ADVERTISEMENT, PAGE 16 OF THE GAS TIMES OF JUNE 21, PUBLISHED IN LONDON, WHICH READS "DESPITE THE DEMANDS MADE UPON US BY THE WAR THE OUTPUT OF OUR PATENT GAS WATER HEATERS AND STORAGE SETS IS FULLY MAINTAINED FOR BOTH HOME AND EXPORT MARKETS." AN ENGLISH MANUFACTURER OF METERS, IN A FULL PAGE ADVERTISEMENT IN THE GAS TIMES MAY 24 PAGE 15 STATES, "NOW WE ARE ONCE AGAIN ABLE TO GIVE DELIVERY THAT IS AS GOOD AS THE METERS THEMSELVES." PHOTOSTATS OF ADVERTISEMENTS BEING AIRMAILED. THE SERIOUSNESS OF THIS SITUATION CANNOT BE OVER-ESTIMATED. I HOPE YOUR COLLEAGUES WILL BE ABLE TO SECURE APPROVAL FOR SUPPLIES TO OUR MANUFACTURERS FOR NORMAL TRADE AT LEAST EQUAL TO THAT BEING RECEIVED BY BRITISH MANUFACTURERS.

JAY JENKINS, Publisher, *GAS*.

Action by Congressman Ford and E. R. Stettinius, Jr., director of OPM's Division of Priorities, has resulted in referring this matter to Charles Holcomb of the Iron and Steel Group.

The gas industry believes that the manufacture and distribution of its products are essential in this period of defense emergency to the health, welfare, and safety of the entire civilian population, and particularly to the millions of men employed on defense orders. Certainly a 50% cut in the industry's production would seriously impair the industry's ability to fulfill its important task, and neither the factories shut down, which are small and decentralized, nor the men who work in them could be easily converted to defense work.

In the matter of priorities, it is the

Steel Facts, June, 1941, published by the American Iron and Steel Institute.

More Than 5000 Copies This Issue

SIGNS OF THE TIMES
STOUT FELLOW! CARRY ON!
BUSINESS AS USUAL
HIS GOVERNMENT
BRITISH BUSINESS MAN
"WHA'SSA MEANIN' OF THAT SIGN? WANT ME T' CRACK DOWN ON YUH, OR SOMETHIN'?"
NEW DEAL DEFEATISM BUREAUCRATS
NEW DEAL PSEUDO-DICTATORS
BUSINESS AS USUAL
AMERICAN BUSINESS MAN
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BARRIE

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duty of the officials in Washington to appraise each industry on its own merits, and to administer justly. But this judgment must be made not only on facts found in the United States, *but on conditions that exist between the United States and the other friendly world powers and their effect on the ability of American industry to protect the health and morale of our people.*

■ ■

Save Fuel for Defense

FUEL conservation plans for the coming winter are at present more concerned with the probable shortage of fuel oil for house heating along the Atlantic Seaboard than they are with gas. The proposal is being advanced that it may be necessary to maintain in eastern oil-heated homes a temperature of five degrees less, so that fuel requirements may be kept within the restricted carrying capacity of our depleted tanker fleet. As is the case with most proposals of this kind, conceived for their value as public psychology awakeners rather than advanced as honest solutions of an approaching problem, nobody has bothered to say five degrees less than what.

Major suppliers of heating oil are honestly concerned at the possibility of their house heating load disappearing in a panic which they believe may prove to be wholly groundless, and are taking steps to educate their consumers in the conservation of the fuel that they are using, through the distribution of literature on home insulation, and in newspaper advertisements pointing out the fuel that is wasted through improperly adjusted or unserviced domestic oil burners.

This is taking time and possible disaster by the forelock, and it is a precaution that should be observed by every gas utility that carries any appreciable heating load on its system. In almost every community there are some industries on the gas lines that are increasing their gas consumption as a result of the manufacture of essential defense materials, whether these materials happen to be actual army or navy ordnance, or tools which will be used to construct the implements of war.

Gradually the industrial load has increased, with the result that the summer months see a send-out that is much too close to the normal winter peak for safety. The winter house heating demand may be expected to create problems for overburdened systems that cannot be solved by the formerly effective device of cutting off the industrial consumers. Defense materials are going to have first call, and that will mean on fuels as well as on raw materials.

Proper home insulation provides one of the best and quickest means of lowering heat losses from houses, and it has the additional advantage of a demonstrable saving in fuel that pays for the insulation itself. A new Bureau of Mines Information Circular (No. 7166) might well be distributed to house heating customers by their gas companies as the opening gun in a campaign to conserve gas fuel for defense, without working an unnecessary hardship on the millions of families who now enjoy its use. The Bureau estimates that during 1939 some 760 billion cubic feet of gas was consumed for heating alone. Proper full-thick insulation of all of the homes, apartments, hotels, and other buildings utilizing this enormous quantity of fuel, might conceivably bring the total of gas consumed to produce the same amount of usable heat down to less than 500 billion cubic feet.

Too much intelligent and unflagging effort on the part of the industry has been expended in gaining the house heating load to allow it to go by default when the same intelligence and effort devoted to heat conservation can save it. An aggressive summer and early fall campaign to save fuel for defense and cut winter heating bills through complete insulation of old homes as well as new ones will pay dividends in public relations far in excess of any immediate loss of house heating revenue that might result.

■ ■

Pick Handle Politics

THE activities of the coal interests and their various and sundry tools, satellites and apologists, including railroads and labor unions and others who have a stake in the advancement of solid fuel and the checking of the growth of natural gas, will bear a little watching at this time.

It has become increasingly obvious that the entire coal industry, and we make no fine distinction here between mine owners and coal miners, looks upon the national emergency as the one golden opportunity of two decades to reverse the trend away from coal, and to halt the progress of both natural gas and fuel oil as sources of heat and energy.

Anthracite operators look on the predicted oil shortage of the coming win-

ter as the lever that will pry their commercial production up to 77 million tons per year, an increase of 29 million over the present output. The bituminous operators, whose output shrank from 573 million tons in 1926 to 452 million tons in 1940, also look to the emergency years that lie ahead to recover for them the market that years of neglect and senseless internal wrangling over labor relations have well nigh jettisoned.

In short, the coal interests' strategy is that the best way to assure a greater consumption of coal is to make it as nearly impossible as they can for the public to use any other fuel. They are willing, of course, that coal converted to gas be distributed by the manufactured gas industry, and because of that condescension we have witnessed the spectacle of companies allied to the gas industry fronting, not for that industry, but for the coal and coke interests whose mandates they must obey.

Earlier in the year (*GAS*, Feb., 1941, p. 13) we had occasion to address our respects to the 22 organizations who presented to the National Advisory Commission of the Council of National Defense a memorandum on the "Adverse effect upon the national defense of the construction of new natural gas pipe lines . . ." We contended at that time that the national defense was only a smoke screen behind which the coal producers, the labor unions interested in high-priced coal, and the railroads interested in its transportation sought to hide, while sabotaging the interests of natural gas, quite independently of any bearing that that interest might have on the question of American security.

Recent events in Washington further bear out this contention, and set up a picture of obstruction of natural gas that leaves no doubt as to the lengths that its saboteurs will go to arrest its phenomenal progress.

During the testimony on the so-called petroleum pipe line bill (H. R. 4816), under which a presidential proclamation of necessity for national defense automatically carries right of eminent domain for the construction of needed lines, the question arose whether natural gas would be considered a "petroleum product" in the meaning of the act. To clarify this meaning, Senator Tom Stewart proposed an amendment specifically including natural gas as a petroleum product. Representatives of the natural gas pipe line companies appeared in behalf of this amendment; Secretary of the Interior and Petroleum Coordinator Harold L. Ickes in a letter to Senator Stewart was of the opinion that such an extension of the provisions of the bill to include natural gas lines would be desirable.

Yet under the frowning threat of the National Coal Association, who "disagree wholly with the interpretation of natural gas being a petroleum product . . ." and who "will be constrained to oppose that interpretation to the very limit of our resources . . .," Senator Stewart concluded not to present his amendment in the fear that it would delay the early consideration and passage of the bill.

Thus the coal interests, the railroads and the labor unions, all of whom opposed the clarifying amendment, prefer and threaten to hold up national emergency legislation to the end that their rights to obstruct the progress of natural gas shall not be impaired.

More recently, testimony has been heard on the amendments to the Natural Gas Act of 1938, H. R. 5249, presented by Congressman Clarence F. Lea, author of the original act. The amendment is designed in the main to clarify certain ambiguities of the original bill, and is regarded as an acceptable piece of legislation as far as the natural gas industry is concerned. It clears up the question of when a pipe line company must make application for a certificate of public convenience and necessity, by the simple expedient of requiring such a certificate for every new project designed to carry natural gas in interstate transportation.

Since as a matter of practical policy all companies contemplating such extensions since the passage of the Natural Gas Act have felt it advisable to apply for a certificate, the amendment merely writes into the law an already accepted practice.

The Anthracite Institute, however, regards H. R. 5249 as a bill to provide for "full participation in hearings involving the issuance of certificates of public convenience and necessity to natural gas companies, to permit the active intervention of coal, railroad, and labor interests."

It would appear that if public convenience and necessity, and all of the particular and peculiar interests of coal, railroad and labor were thus safeguarded, there could be little grounds for objection to any pipe line extension or any construction into new territory, once the Federal Power Commission had issued its certificate.

Logically enough, it would also appear that such public interest to be served by the construction of a new gas line would best be served by having it constructed with a minimum of delay. To this end, an amendment to H. R. 5249 was proposed by the representatives of several natural gas pipe line companies, which would automatically carry the right of eminent domain to those to whom a certificate had been issued.

This again drew the venom of the solid fuel and allied interests, and their spokesman appearing before the House Committee on Interstate and Foreign Commerce vehemently opposed the amendment, this time as the representative of 36 various organizations and associations.

At this writing the Lea bill, amending the Natural Gas Act, has not been passed, and there is still a possibility, although certainly not a probability, that the right of eminent domain will be incorporated in it. If it is thus incorporated, the spectacle of the railroads, playing sycophant to the coal companies that they serve, holding up miles of natural gas pipe line through refusal to grant a right of way under 60 ft. of roadbed, denying the use of this indispensable fuel to scores of vital defense industries, will be ended.

If this right is not incorporated we shall continue to have regulation jointly controlled by regulatory bodies, representing all the people and obstructionists, representing the petty selfish interests of vociferous minorities.

In GAS for September

Among the many features which the September issue of GAS will offer its readers are:

(1) A preview of the Pacific Coast Gas Association's 48th Annual Convention to be held at Del Monte, September 10-12.

(2) A symposium on the gas storage holder. Such authorities as M. R. Thompson and Harry J. Keeling of Southern Counties Gas Co., Byron Millner of the Pacific Gas and Electric Co., and Arthur B. Allyne of the California Railroad Commission will discuss the results of the first year of gas holder operation under the Commission's General Order No. 94.

(3) R. A. Carter of the Continental Oil Co. is the author of an article giving a resume of current dehydration processes particularly as they apply to repressuring and pressure maintenance.

(4) A letter from London received from H. Staniforth, executive director of the Gas Times, weekly periodical published for the British gas industry, forms the basis for an article on gas operations under war-time conditions.

"If all the steers in Texas were one big steer..."
FIFTY YEARS AGO, the Texan's proud boast that his conglomerate Texas steer could punch holes in the moon with his horns and sweep the mists from the Aurora Borealis with his tail, was fairly adequate. It's not today: in order to tell the people of the North, East, Middle West and West about his state, the Texan of 1936 must tremendously enlarge upon his grandfather's pride in Texas cattle.
Today's Texas can only be described in superlative terms. Texas is the only state which ever maintained itself as an independent republic. It is the largest state in the Union: its latitude roughly covers a distance equal to that from Boston to Newfoundland, and as the crow flies the distance from Houston on the east to El Paso on the west is greater than the distance from Houston to Kansas City, Missouri: altitude varies between sea level and 8000 feet: its population in 1930 was approximately six millions. Texas stands first in the Nation in the number of cattle on its farms and ranches, in the extent of its proven oil reserves, in the production of wool and mohair, in cotton, in sulphur, in natural gas.
With all this, the development of Texas is only well started!
In Texas, there is still room for the newcomer, and particularly for the industrial pioneer. In the Gulf Coast area alone, many new industries are finding locations close to their source of raw materials and within easy reach—by rail or water—of domestic and foreign markets, not the least of which is the state of Texas itself.
The Texas coast line is some four hundred miles long. It is pierced by numerous bays and estuaries and boasts eight ports of major industrial importance: Houston, for example, is the third export port of the country. Behind the coast, there is a superabundance of such resources as sulphur, carbon black, lumber, oil, cattle, wool, mohair, cotton, metallic ores, Fuller's earth, salt, clays, shell for lime and cement, and many others. This country is criss-crossed with long stretches of paved highway and rail lines which link it with all parts of the United States and Mexico. The climate is mild in winter and cooled in summer by breezes from the Gulf. Cities are new, clean, modern, progressive and populous . . . And for fuel, there are unlimited resources of natural gas. . . .
Visit the Texas Centennial celebrations this year, and see for yourself the abundance and the variety of the resources available to industries located on the Texas coast. Certainly, this region warrants the full investigation of industrial management: Texas offers what industry needs.
HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas
Wholesalers of Natural GAS
SELLS
The Texas Gulf Coast
To American Industry

BACK IN THE depression years of the early 1930's, GEORGE A. HILL, Jr., then recently elected president of the Houston Pipe Line Co., hit upon a plan to reveal the riches of South Texas to industrial America. A man who played a leading role in the development of that plan was ROBERT L. DABNEY, who, becoming affiliated with Houston Pipe Line in March of 1933, was shortly placed in charge of the company's sales and advertising departments. By 1934 the plan was in progress—a wholesale sales department had been organized, the company began to take stock of the many natural resources (including natural gas) that the Texas Gulf coast had to offer. Then the story had to be told, and in 1936 Houston Pipe Line Co. through the pages of "Fortune" began to reveal the wonders of Texas to American industry. The story of the inception of the plan, of the formation of the advertising campaign was told by Mr. Dabney in GAS, February, 1937, page 19. The present article summarizes the widespread results that have come from this five-year development plan.—Editor.

BACK in 1936, the year of the Texas Centennial when Texas was very much in the news, Houston Pipe Line Co., wholesaler of natural gas, began a program of advertising to national industry, directing its attention to the Texas Gulf Coast. This began what was the first consistent national advertising program by a Texas firm to bring new industries to Texas, and was run in *Fortune* Magazine and in *Chemical & Metallurgical Engineering.*

This was more than just an advertising campaign, for the Houston Pipe Line Co.'s program was based on a comprehensive survey plan which had been planned for a number of years preceding the beginning of the advertising program. This survey was not a stereotyped report, but individualized for each industry, and planned to be sent only upon request. It was planned to contain documented evidence along specific lines, the availability of natural resources the particular industry was interested in, data regarding availability of markets, of transportation facilities, of native Texas labor, and of the temperate climate so favorable to industry. Naturally, the availability of natural gas in unfailing quantities as a fuel source, and as a raw material in chemical processes, headed the material contained in this individualized survey. And above all else, the inquiring industry was assured that this was a confidential matter between the industry and the Houston Pipe Line Co., and that no publicity would be given the inquiry, a most important matter to any industry contemplating the establishing of a plant in Texas. Wherever specific scientific data was required that our own research department did not know, experts outside the company were consulted about the authentic information.

Texans, of course, have never been backward in talking among themselves about the natural advantages of Texas that would support diversified industrial development. However, until the Houston Pipe Co. series of advertisements started, this had been too much in the category of a family secret, and Texas was not getting its share of new industries. George A. Hill, Jr., president of Houston Pipe Line Co., a native Texan, realized that the Texas Gulf Coast's story must be told to the nation's industrialists, and his was the urging that started the company's research and advertising program. The groundwork was done during the depression years with the establishing of a wholesale sales department. Maps, charts, graphs, and authentic information regarding the region's natural resources were compiled over a considerable period.

This slow but sure method revealed that there were more resources than anyone had ever dreamed of, and this is borne out by the listing in a recent Houston Pipe Line Co. advertisement of these resources: Anhydrite, arsenopyrite, asphalt, rock, barite, basalt, bentonite, bromine, building and ornamental stones, caliche, candelilla plant, castor bean, cattle, celestite, chromite, cinnabar, citrus fruit, clay, carbon

black, coal, corn, cotton, cotton linters, cotton seed, diatomaceous earth, dolomite, feldspar, fish, flax, fluor-spar, forest products, fuller's earth, filsonite, graphite, greensand, gypsum, heavy chemicals, helium, industrial water, iodine, iron ore, koalin, lead, lignite, limestone, manganese, magnesium, mercury, mica, mineral waters, mohair, molybdenite, natural gas, naval stores, oyster shell, peanuts, petroleum, potash, quartz, rice, salt, salt cake, sand, sea water, silver ore, sulphur, sweet potatoes, talc, wool, woolrock, and zinc. This is an imposing list, and Texas leads the United States in many of these natural resources. While a few of these have not been developed commercially, exploratory work by competent scientists has established their availability.

The advertising program to take Texas' story before industrial management was divided into three phases at the beginning of this program, and this has proven sound and has been followed through the years since 1936: (1) general advertising, designed to reach the whole broad market of industry; (2) trade paper advertising to reach specific industries, particularly the chemical industry; and (3) direct-by-mail advertising to reach individual heads of industries. All three types of advertising have been based on the survey plan inaugurated in 1936.

Fortune Magazine has carried the schedule of general advertising since the inception of the program. The 1936 advertisements, tieing in with the Centennial, were typically Texan, as revealed by a few of the headlines: "If All the Steers in Texas Were One Big Steer . . ."; "Kinfolks Down in Texas"; "The Emigrating or Texas Fever Prevails"; "A Very Extensive and Valuable Territory"; and "A Proved Industrial Territory—But There's Still Room (and Profits) for the Pioneer."

The 1937 series of advertisements dealt with specific resources, including advertisements built around forests, sulphur, oyster shell, natural gas, cattle, cotton, and oil. The 1938 advertisements featured new industrial plants with lithographs by the well-known Texas artist, E. M. Schiwetz. Headlines of that year had a distinct Texas flavor: "Gone to Texas!"; "Welcome, Stranger, Make Yourself at Home"; "Financial America Knows the Story of Expanding Industry on the Texas Coast"; "Without Pomp or Promotion . . ."; "The Texas Coast Country is Charted Industrial Territory, But It Offers You the Advantages of the Pioneer"; and "In Texas, Pioneers Have Always Prospered." In 1939, such headlines as these appeared: "Industry's World of Tomorrow is on the Texas Coast"; "A Simple Twist of the Wrist"; and "It's a Big Country—Texas—With Plenty of Room for Growth."

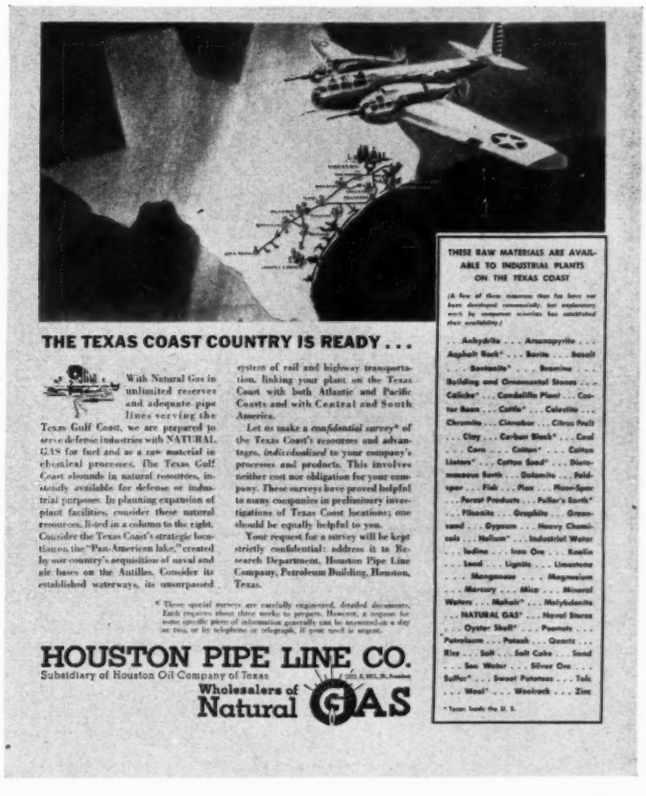
The 1940 series began to use pictorial maps portraying the industrial activity on the Texas Gulf Coast, and among the headlines of that year were to be found: "A Boom in Texas? . . . We Don't Call It That!"; "The Streets of Houston Are Not Paved With Gold . . ."; "The Texas Coast Country Offers Your Company Unrivaled Advantages of Location"; and "The Texas Coast is an Important Factor in Your Plans for Plant Expansion." With 1941 and the great national defense program, it is natural to find such headlines as these in the Houston Pipe Line Co. advertisements: "The Raw Materials of Defense are Abundantly Available to Industries Located on the Texas Coast"; "The Texas Coast Country is Ready . . ."; "The Texas Coast Looms Larger Than Ever in the Industrial Picture"; and "Ready, Willing and Able to Serve." Without any attempt at flag-waving, these 1941 advertisements tell a simple, straight-forward story.

Trade paper advertising, for the most part in *Chemical & Metallurgical Engineering*, has told a more direct, specialized story, although in some cases this medium also carried the same story as the *Fortune* advertisements. In the third phase, the direct-by-mail campaign, personal letters addressed to top executives of industries have been used, usually enclosing a reprint of one of the current advertisements.

This advertisement was published in "Fortune" in 1939.

A SIMPLE TWIST of the WRIST
. . . starts the fires of industry to burning on the Texas coast. For they are fed by natural gas, industry's most efficient, most economical fuel. Expensive fuel unloading equipment, expensive fuel storage space, expensive boiler room installations for preparing fuel—all are conspicuous by their absence on the Texas coast. The availability of natural gas* in unlimited quantities has been, is and will be a decisive factor in the industrial development of the Texas coast country.
As suppliers of natural gas along a 650-mile pipeline system, we are interested in seeing the new industrial smokestacks which are rising on the Texas skyline. The Texas coast country has attracted these expanding and decentralizing industries with obvious advantages of location: markets, not only in big, rich Texas, but on both coasts and in South America; raw materials of every kind in great abundance; transportation facilities, rail, highway and water; a climate mild from one year's end to the next; capital; a rapidly growing, progressive population.
So much for industry in general. The Coast Country's specific advantages to your company can best be determined by an individualized survey. This we are prepared to make for you, without cost or obligation, on request. Write us fully regarding specific information desired, we shall begin to assemble it immediately, and the completed survey should be in your hands within a month or six weeks. You will find it detailed, complete, carefully engineered throughout. And your request, from first to last, will be held in strict confidence. Address your letter to Research Department, Houston Pipe Line Company, Petroleum Building, Houston, Texas.
HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas
Wholesalers of Natural GAS

A sample of the company's 1941 campaign in "Forfune."


THE TEXAS COAST COUNTRY IS READY . . .
THESE RAW MATERIALS ARE AVAILABLE TO INDUSTRIAL PLANTS ON THE TEXAS COAST
HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas
Wholesalers of Natural GAS

Has this far-reaching program been successful? We think that it has. Our campaign has attracted much favorable comment from our customers, from magazines, newspapers, and individuals in Texas, who, like ourselves, believe in Texas' industrial possibilities and are interested in seeing industry become more Texas minded. In 1936, as we began our program of national advertising, we predicted that the great chemical industry would be one of the first to take advantage of Texas' resources. We have seen that prediction come true with the location of several major chemical industries on the Texas Gulf Coast. But the trend has not stopped with this one industry. Since 1936 we have welcomed the pulp and paper industry; the canning industry, representing both manufacturer and canners of fruit and vegetables; additional food products processers or manufacturers, including meat packers, and coffee roasters; the ship building industry, including the builders of barges, tugs, boats, and yachts; and the great machine industry which includes galvanizing, steel fabricators, oil tool manufacturers; and countless others. These new industries brought to Texas represent millions of dollars in plant investment, in payrolls, and in sales volume, employing as they do thousands of our native Texans.

ROBERT L. DABNEY

GEO. A. HILL, JR.

One of the most encouraging factors is that Houston Pipe Line Co.'s pioneering in the national advertising field has led to others becoming active in telling the story for Texas. One gas system began a national advertising program last year; another has begun a program this year. Our company intends to continue its program, making additions from time to time and changing tactics as changes seem to be called for. Never before has Texas had so much to offer industry, and our company, for one, stands "ready, willing and able to serve."

Safety Council Issues Utility Accident Booklet

ACCORDING to a recent booklet published by the National Safety Council, Inc., Chicago, on "Accident Rates in the Public Utility Industries for 1940," the best all-time no-injury records made by natural and manufactured gas companies known to the National Safety Council were made by the Hope Natural Gas and Subsidiary Companies, Pittsburgh, Pa., and the Philadelphia Electric Co., Gas Division, respectively.

The following figures for the companies represent the number of continuous man-hours worked without a disabling injury. The Hope Co. with 3,167,788 man-hours began its record on November 10, 1931, and terminated it September 23, 1932. The Philadelphia Electric Co. Gas Division record was 1,709,700 man-hours for the period Nov. 24, 1932, to Sept. 22, 1933.

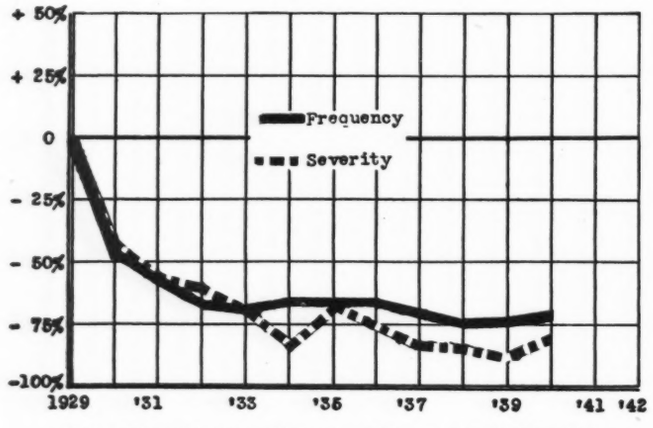
In the report, injury frequency rate is defined as the number of reportable injuries per million hours of exposure, and injury severity rate is the number of days lost as the result of reportable injuries, per 1000 man-hours of exposure. This rate includes arbitrary time charges for permanent partial disabilities and deaths, in accordance with the standard scale.

The 1929-1940 changes in frequency (considering all injuries) for natural gas companies was reported as —72%. Changes in severity for this period was —88%. Changes in frequency for the period 1939-1940 was +7%, and changes in severity for this period was +77%, showing a reversal of the trend. The severity rate for 1940 was 1.31 days lost per 1000 man-hours of exposure, and the frequency rate for that year was 14.26 injuries reported per million hours of exposure.

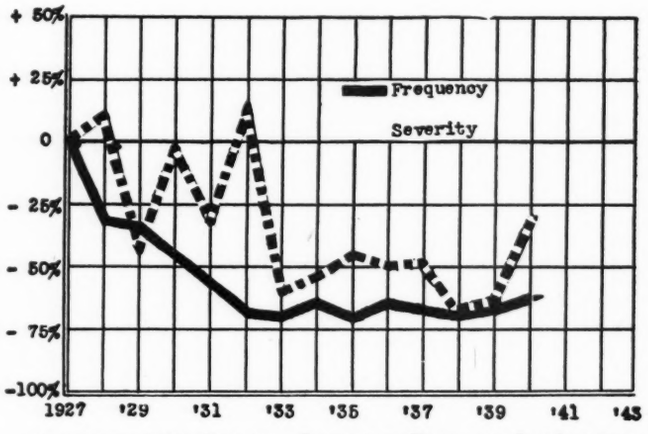
The 1929-1940 changes in frequency (considering all injuries) for manufactured gas companies was reported as —63%. Changes in severity for this period was —29%. Changes in frequency for the period, 1939-1940, was +12%, and changes in severity for this period was +95%. The severity rate for 1940 was 1.22, and the frequency rate for that year was 13.62.

Large organizations had the lowest 1940 injury rates. Frequency rates were highest in middle-sized companies and severity rates were highest in small organizations.

The Columbia Gas and Electric Corp., Cincinnati group made the largest reduction in frequency from 1938 to 1940 among large organizations—32%. Also the largest reduction in severity, 68%. Lowest 1940 frequency rate among middle-sized units was made by the Southwestern Gas and Electric Co., 1.31. Lowest severity rate rate was made by the Luzerne County Gas & Electric Corp., 0.01.



Natural Gas Division—Percentage Changes in Accident Rates



Manufactured Gas Division—Percentage Changes in Accident Rates

Merco Nordstrom Valve Company's

AUTOMATIC CLOSING VALVE

By E. E. HEDENE

Chief Engineer, Merco Nordstrom Valve Co., Oakland, California

E. E. HEDENE

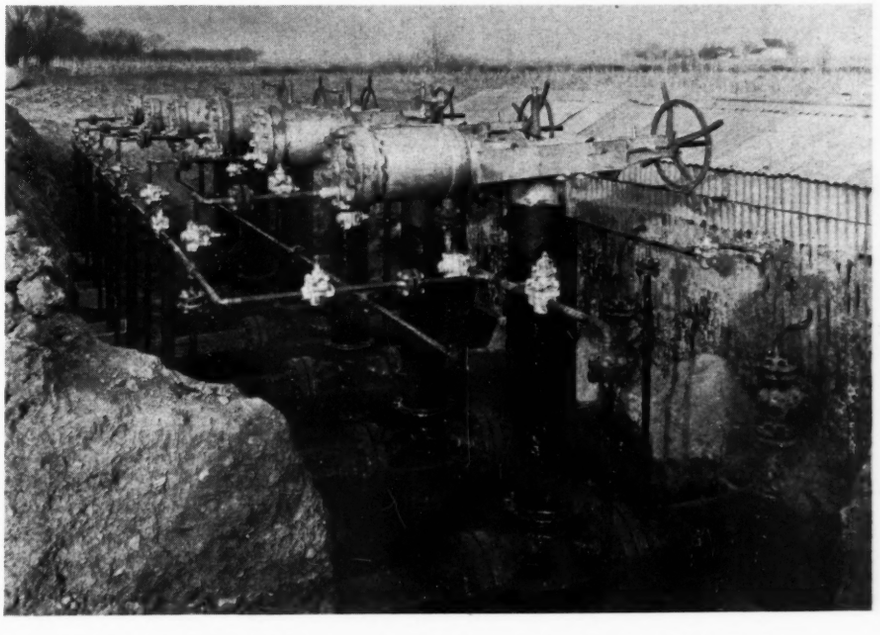
MR. HEDENE, who first became affiliated with the Merco Nordstrom Valve Co. in 1926, has been chief engineer of that company since 1933, and in that capacity has had charge of all phases of valve design, installation, and use. After completing his engineering education at the University of California, he was from 1919 to 1921 designing engineer and chief engineer for Standard Gas Engine Co., and from 1921 to 1926 he was in charge of the engineering department for Doble Steam Motors.—Editor.

TRANSMISSION of gases and liquids through pipe lines has grown to such a magnitude that today it is considered an essential and necessary means for economical transportation of fluids in many of the basic industries. Such transmission pipe lines often traverse long distances, over difficult terrain and at times are subjected to the destructive effects of storms, floods, washouts, etc. For years both the executives and engineers of gas pipe line companies have been confronted with the problem of providing greater protection for their pipe lines than that which could be obtained by merely using the shutoff valves customarily installed on such pipe lines. Different types of protective means have been tried, including the installation of check valves, which would prevent the discharge of stored gas from the upstream side of a pipe line break, but the goal to which they were striving was not reached until very recently.

One of the gas pipe line companies experimented with check valves without satisfactory results. Then both motor and gas operating equipment were tried out on their present installed gate valves, but proved impracticable due to the high differential pressures involved. The requirement was for a valve and control system which would not be affected by normal line pressure fluctuations due to service demands, yet would close automatically in case of a line break on either side of the valve, remaining closed until manually reopened and still be manually operated when so desired independent of the automatic control system.

The Merco Nordstrom Valve Co., in conjunction with the engineers of this pipe line company, has developed such a valve and control system to accomplish this purpose. The valve and control system which has proven satisfactory is illustrated in Fig. 1, which shows the valve in the open position and set for automatic operation. Essentially it consists of a Nordstrom Hypreseal valve, piston operated, with the piston and piston rod connected to a sliding rack engaging with a segmental gear attached to the operating stem of the valve. Longitudinal motion of the piston in the cylinder transmitted through the operating mechanism rotates the plug in the valve to either close or open the valve, thus controlling the flow of fluid in the main pipe line. A suitable operating pressure tank is provided, which is connected to the upstream side of the main pipe line and "floats" on the pressure system. The cylinder of the piston-operated valve has two connections, *viz.*, one connection from below the piston to the operating pressure tank, the other connection from the top of the piston to the pipe connecting the main pipe line to the operating pressure tank, with an orifice or choke "C" placed between this latter connection and the operating pressure tank to restrict the flow of fluid in or out of this tank.

An additional connection joining the operating pressure tank to the main pipe line downstream from the main valve may be provided to furnish pressure to the operating pressure tank when a break has occurred upstream from the main valve. Such a break will not only automatically close the main valve, but will allow the pressure in the broken main line, operating pressure tank and cylinder to become exhausted. By turning the multiport valve "F" to close off the connection to the upstream side of the valve and to connect the downstream side of the valve to the pressure operating tank, pressure from the downstream connection can be used to reopen the main valve when required. For manually controlling the power-operated mechanism when desired, the multiport valves "D"



Series of Merco Nordstrom automatic closing valves installed in the field.

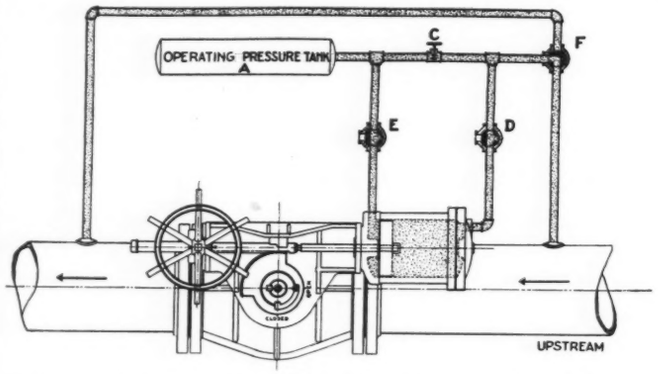


FIG. 1. Valve in the open position and set for automatic operation.

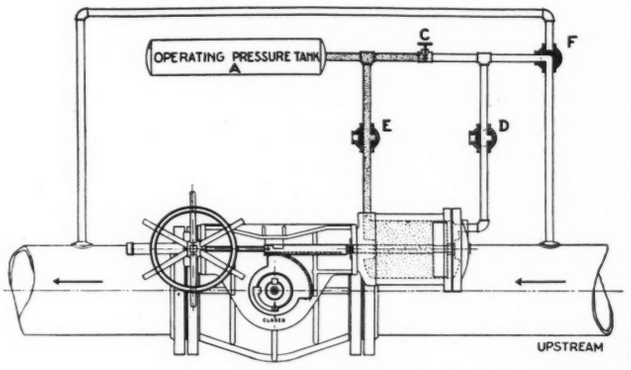


FIG. 2. Positions of the piston, rack and segment after an automatic closing operation has occurred.

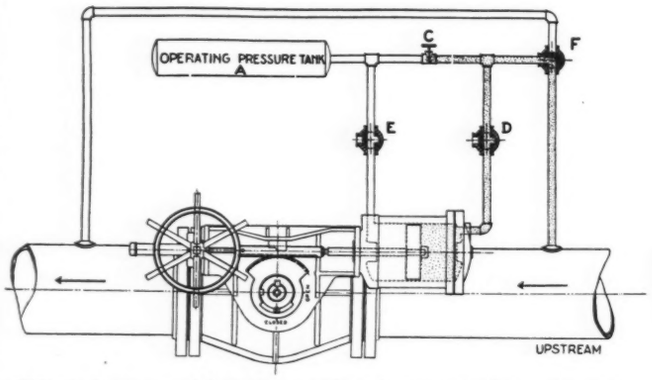


FIG. 3. Positions of the piston, rack and segment when repressuring of the operating pressure tank system occurs with the main valve closed and the pipe line rupture downstream of closed valve.

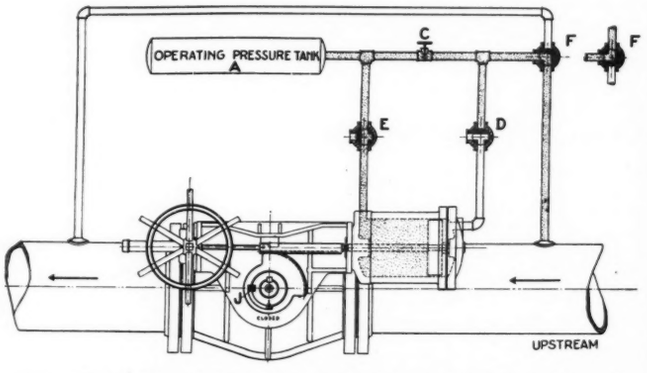


FIG. 4. Positions of the piston, rack and segment preparatory to reopening the main valve by power, after repairs to the ruptured pipe line have been completed.

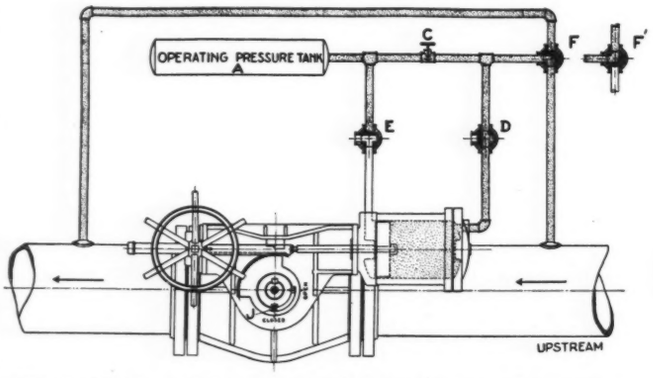


FIG. 5. Positions of the piston, rack, segment and valve reopening under pressure.

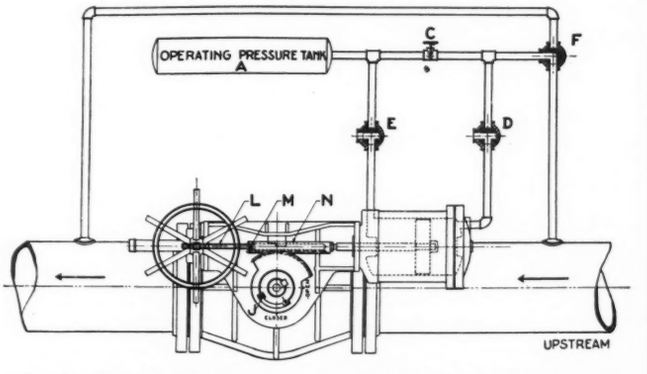


FIG. 6. Mechanical operating mechanism to open or close the main valve independent of any power means.

and "E" are used, which allow the operator to exhaust either side of the piston as desired to cause the opening or closing of the main valve. The normal positions of these valves "D" and "E" are shown in Fig. 1. Manual means, in addition to the power-operated means, have been furnished to permit the direct mechanical operation of the valve without resorting to pressure whenever required.

Operation: In theory and actual practice, should the pipe line rupture either upstream or downstream from the open main valve, the resulting rapid decrease of pressure in the main line at the main valve will produce a similar reduction of pressure in the cylinder above the piston and because of the restriction through the orifice "C," the pressure in both the operating pressure tank and in the cylinder under the piston will not drop as rapidly as that in the main pipe line, thus creating a differential pressure across the piston sufficient to move it and close the main valve. A novel type of connection between the segment gear and the valve stem is employed, which only permits closing of the main valve when set for automatic closing operation.

Fig. 2 illustrates the positions of the piston, rack and segment after an automatic closing operation has occurred.

Fig. 3 illustrates the positions of the piston, rack and segment when repressuring of the operating pressure tank system occurs with the main valve closed and the pipe line rupture downstream of the closed valve. The repressuring of the control system causes the piston, rack and segment to return to their normally open position without rotating the plug stem and with the main valve remaining closed.

Fig. 4 illustrates the positions of the piston, rack and segment preparatory to reopening the main valve by power,

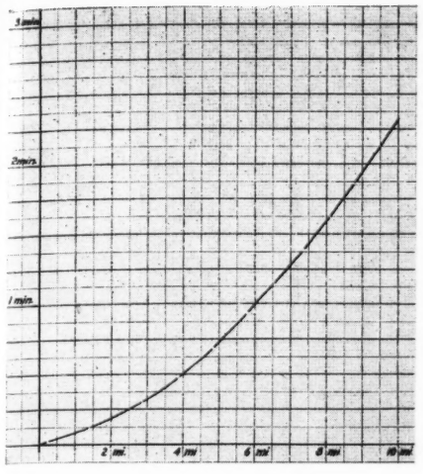


FIG. 7. Graph of time required for average main line pressures to drop 100 lbs. at a valve setting in case of a main line failure at various distances from the valve setting.

after repairs to the ruptured pipe line have been completed. The valve "D" is turned to disconnect the operating pressure tank and to exhaust the pressure in the cylinder above the piston. The piston is then moved by the pressure in the operating pressure tank to the extreme outboard position as shown in Fig. 4, at which time the slip key "J" is placed to rigidly connect the segment to the plug operating stem.

Fig. 5 illustrates the positions of the piston, rack, segment and valve reopening under pressure. The valve "D" is turned back to reconnect the operating pressure tank to the cylinder and the valve "E" turned to disconnect the operating pressure tank to the cylinder and to exhaust the cylinder under the piston to the atmosphere, thus admitting pressure through valve "D" to the top of the piston to reopen the main valve. With the main valve fully open again, the slip key "J" is removed and the valve "E" is returned to its normal operating position as shown in Fig. 1, thus leaving the main valve and control system again set for automatic closing. Should the line break occur upstream of the main valve and all pressure dissipated from the operating tank and control system, then by rotating valve "F" to the position "F," the pressure from the downstream side of the closed valve can be utilized to reopen the main valve.

Fig. 6 illustrates the mechanical operating mechanism to open or close the main valve independent of any power means. With the slip key "J" in place, valves "D" and "E" are turned to vent both ends of the cylinder to the atmosphere and to disconnect the operating pressure tank from the cylinder. A connecting pin "M" is placed to join the rack "N" to the operating screw "L," and the main valve may now be operated manually to either open or close as desired.

For the initial experimental work, a 12-in. Nordstrom Hypreseal Cast Steel valve, Fig. No. 4449, was used with both the valve and cylinder designed for 800 lbs. per sq. in. working pressure, 1200 lbs. per sq. in. test pressure. The piston size was chosen to operate the valve with 100 lbs. per sq. in. maximum differential pressure across the piston. The first tests which were run on this valve demonstrated conclusively the soundness of both the theory as well as the mechanical principles of the control system and valve. The first tests demonstrated that the valve would close with 40 lbs. per sq. in to 50 lbs. per sq. in differential pressure across the piston with 651 lbs. per sq. in. on the upstream side of the plug and atmospheric pressure in the downstream side. Additional tests were made to determine the responsiveness of the valve and control system when line breaks occurred at increasing distances from the valve setting. Such tests were made by determining the effect of the position of a line break in respect to the valve setting.

Fig. 7 was prepared to show the time required for the main line pressure to drop 100 lbs. per sq. in. at the valve setting, with assumed main line failure occurring at varying distances from the valve setting. Tests were made by varying the rate of pressure drop at the valve setting to simulate pipe line breaks at varying distances from the valve setting. Table No. 1 is a summary of these initial tests.

These first tests demonstrated that the valve and control system would be responsive to breaks as remote as 8½ miles from the valve setting, and it was decided to continue the tests to determine whether the valve and control system would be responsive to breaks occurring at greater distances from the valve setting than 8½ miles. Five more valves identical with the first were subsequently installed at one of the company's river crossings, which then consisted of six 12-in. lines manifolded together and so arranged that further tests could be run. The amount and rate of pressure drop necessary in the pipe line at the valve setting to cause the valves to close was then determined. It is obvious that if the break was close to the automatic valve setting, the pressure drop in the pipe line

TABLE No. 1

Pressure in System-lbs.	*Pressure Drop Required to Start Closing of Valve-lbs.*	*Pres. Drop Required to Complete Closing of Valve-lbs.*	*Time Required to Close*	*Approximate Distance of Valve From Main Line Break-Miles*
675	50	100	24 sec.	5
674	64	94	30 sec.	6
674	59	154	1 min. 31 sec.	8½
654	44	134	45 sec.	8½

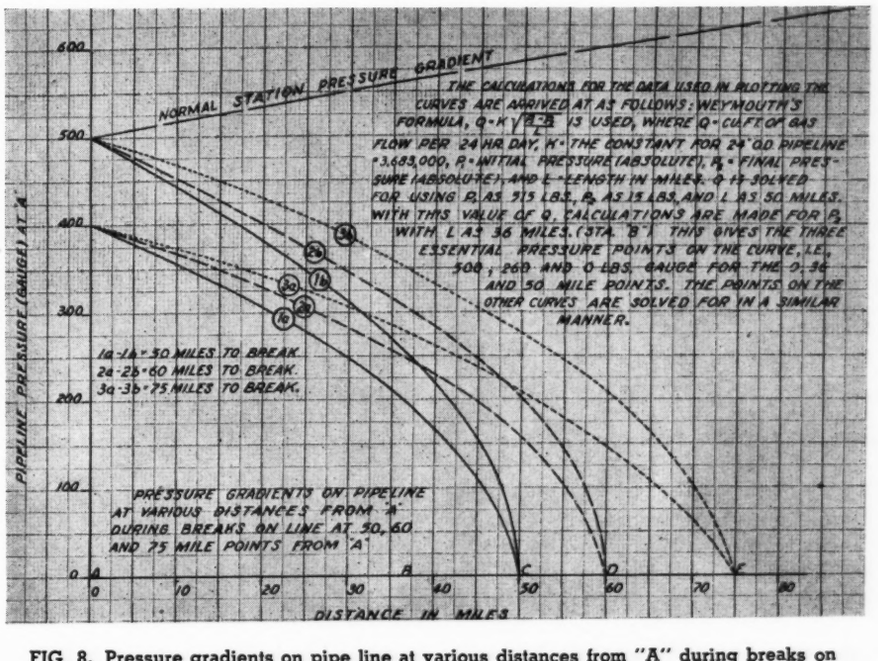

NORMAL STATION PRESSURE GRADIENT
THE CALCULATIONS FOR THE DATA USED IN PLOTTING THE CURVES ARE ARRIVED AT AS FOLLOWS: WEYMOUTH'S FORMULA, Q = K √(P1² − P2²)/L IS USED, WHERE Q = CU.FT OF GAS FLOW PER 24 HR DAY, K = THE CONSTANT FOR 24" OD PIPELINE = 3,683,000, P = INITIAL PRESSURE (ABSOLUTE), P2 = FINAL PRESSURE (ABSOLUTE), AND L = LENGTH IN MILES. Q IS SOLVED FOR USING P1 AS 515 LBS., P2 AS 15 LBS. AND L AS 50 MILES. WITH THIS VALUE OF Q, CALCULATIONS ARE MADE FOR P2 WITH L AS 36 MILES. (STA. "B"). THIS GIVES THE THREE ESSENTIAL PRESSURE POINTS ON THE CURVE, I.E., 500, 260 AND 0 LBS. GAUGE FOR THE 0, 36 AND 50 MILE POINTS. THE POINTS ON THE OTHER CURVES ARE SOLVED FOR IN A SIMILAR MANNER.
1a-1b = 50 MILES TO BREAK.
2a-2b = 60 MILES TO BREAK.
3a-3b = 75 MILES TO BREAK.
PRESSURE GRADIENTS ON PIPELINE AT VARIOUS DISTANCES FROM "A" DURING BREAKS ON LINE AT 50, 60 AND 75 MILE POINTS FROM "A"
PIPELINE PRESSURE (GAUGE) AT "A"
DISTANCE IN MILES
600
500
400
300
200
100
0
10
20
30
40
50
60
70
80
A
B
C
D
E

FIG. 8. Pressure gradients on pipe line at various distances from "A" during breaks on line at 50, 60, and 75 mile points from "A."

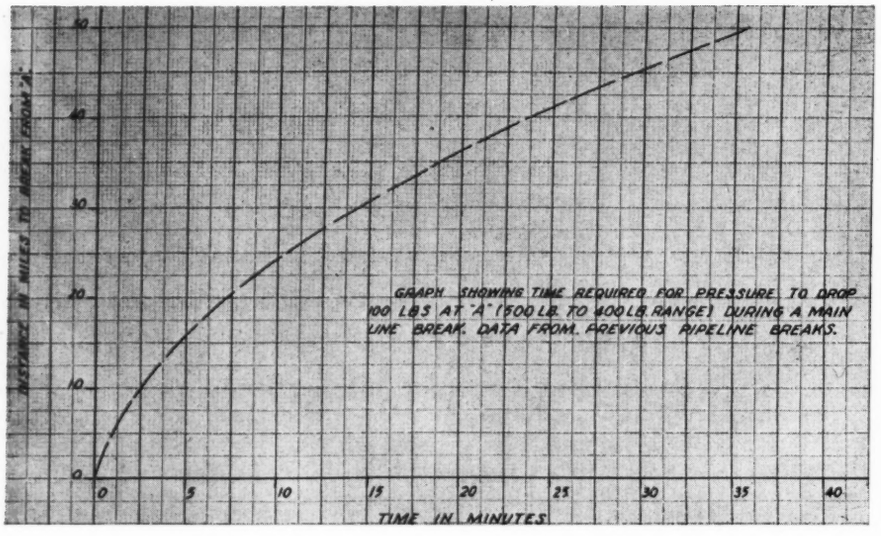

GRAPH SHOWING TIME REQUIRED FOR PRESSURE TO DROP 100 LBS AT "A" (500 LB. TO 400 LB. RANGE) DURING A MAIN LINE BREAK. DATA FROM PREVIOUS PIPELINE BREAKS.
DISTANCE IN MILES TO BREAK FROM "A"
TIME IN MINUTES

FIG. 9. Graph showing time required for pressure to drop 100 lbs. at "A" (500-lb. to 400-lb. range) during a main line break. Data from previous pipe line breaks.

at the valve setting would be rapid and closing would occur almost instantly, but as the assumed position of the pipe line break moved farther away from the valve setting, the rate of pressure drop in the pipe line at the valve setting would be slower and more of the reservoir pressure would be spent, thereby increasing the time required to close the valve.

During such an assumed break in the pipe line, at varying distances from the automatic valve setting, the rate of pressure drop will vary according to two variables:

1. The distance of the valve setting from the dead end of the pipe line.

2. The distance of the assumed break from the valve setting.

Fig. 8 is a chart showing the pressure gradients on the pipe line calculated at the instants the pressures at "A" were 500 and 400 lbs. gage. Three cases were considered: breaks at 50, 60, and 75 miles from "A," or 14, 24, and 39 miles from the valve setting. The valve setting is located at point "B," or 36 miles from "A."

Fig. 9 is a chart showing the time required for the pressure to drop 100 lbs. at "A" during a main line break at varying distances from "A," and is based on the actual rate of pressure drop recorded from previous pipe line breaks. For example, with a break 50 miles from "A," 35 minutes was required for the pressure to drop 100 lbs. at "A."

Referring again to Fig. 8 (curve for the 50-mile break: la-lb), the time element is the same for a 500 to 400 lb. drop at "A" as it is for a 55-lb. drop at "B" (260-205-lb. range). Therefore, in the 50-mile break case at "B," the pressure drops 55 lbs. in 35 minutes (260-205 lbs.). These data give the slope of the curve in Fig. 10 between 260 lbs. and 205 lbs., where pressure drop in pounds is plotted against minutes of time. The rate of change of the curve is taken from the experimental data. By trial the curve is plotted so it will satisfy the rate of change from the experimental data and the slope of the curve arrived at above.

The same procedure was used for calculating the 60 and 75 mile curves (Nos. 2 and 3, Fig. 10). In the 60-mile case, the time element at "B" is 42 minutes for a 62-lb. drop. In the 75-mile case the time element at "B" is 60 minutes for a 73-lb. drop.

Fig. 11 is a graph prepared to show the relationship between pressure drops in the pipe line and the time for closing the automatic valve. These data are from experimentation. When the pressure drop is rather sudden, the valve will close with a 55-lb. average pressure drop in the pipe line. As the rate of pressure drop in the pipe line becomes slower, the time required for the valve to close is increased. The relationship is plotted as a straight line on the graph shown in Fig. 11.

By using graphs Fig. 10 and Fig. 11 in conjunction, the determination was made of the time required for the valves at point "B" to close. By using the 50-mile curve, it was found that the valve setting pressure drop was approximately 57 lbs. in the first two minutes following the break. These time and pressure conditions also satisfy the graph in Fig. 11. Consequently, if the pressure at the valve setting "B" was 560 lbs. initially, then when a break occurred 50 miles from "A" or 14 miles from "B," the automatic valve would commence to close in two minutes, at which time the line pressure at the valve setting would have dropped to approximately 503 lbs. gage.

If the break were 60 miles from "A" or 24 miles from valve setting "B," the automatic valve would commence to close in four minutes, at which time the line pressure in the valve setting would have dropped to 502 lbs. gage, or a 58-lb. pressure drop. Considering the break 75 miles from "A" or 39

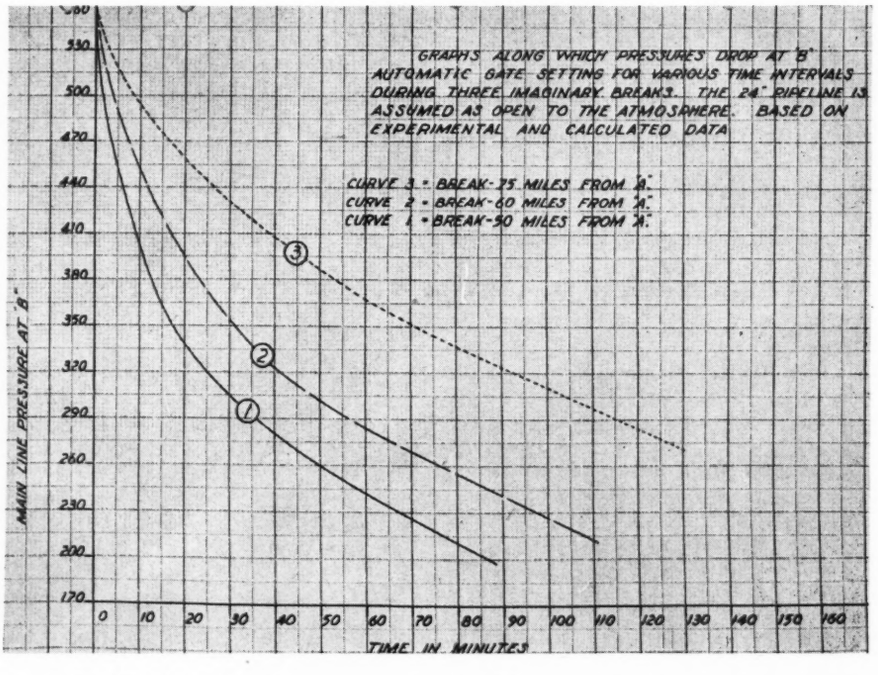

GRAPHS ALONG WHICH PRESSURES DROP AT "B" AUTOMATIC GATE SETTING FOR VARIOUS TIME INTERVALS DURING THREE IMAGINARY BREAKS. THE 24" PIPELINE IS ASSUMED AS OPEN TO THE ATMOSPHERE. BASED ON EXPERIMENTAL AND CALCULATED DATA
CURVE 3 = BREAK-75 MILES FROM "A"
CURVE 2 = BREAK-60 MILES FROM "A"
CURVE 1 = BREAK-50 MILES FROM "A"
MAIN LINE PRESSURE AT "B"
TIME IN MINUTES

FIG. 10. Graphs along which pressures drop at "B" automatic gate setting for various time intervals during three imaginary breaks. The 24-in. pipe line is assumed as open to the atmosphere. Based on experimental and calculated data.

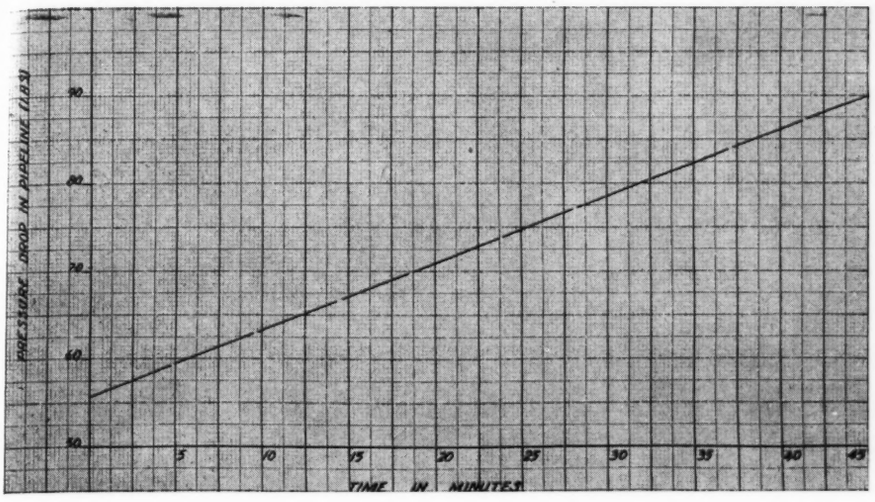


FIG. 11. Graph showing time in minutes required for automatic valves to close when the rate of pressure drop varies, thus causing the amount of pressure drop in the pipe line to vary also. The data is from actual tests.

miles from valve setting "B," the automatic valve would commence to close in approximately nine minutes, at which time the line pressure in the valve setting would have dropped to 500 lbs. gage or a 60-lb. pressure drop.

These comprehensive tests definitely proved that both the Nordstrom valve and control system were responsive to line breaks as remote as 39 miles or more from the valve setting and would, under the latter conditions, commence to close in approximately nine minutes, when a pressure drop of approximately 60 lbs. at the valve setting existed.

Because of the excellent results of these tests, the officials of this pipe line company were so well satisfied that additional valves were ordered in sizes 12 in., 16 in., 18 in., and 24 in.

The automatic closing valve is now being manufactured in sizes 12 in. to 24 in. inclusive and can be furnished at any pressure rating between 250 lbs. and 1000 lbs.

Nordstrom valves and automatic control system may be applied to both main pipe lines and to branch lines to afford maximum protection for the transmission system. When installed on branch lines, this automatic control system will protect the supply of gas in the main trunk line should any disaster occur to the branch line. The automatic control system will function to isolate the broken section of the pipe line, conserve the line pack and prevent the excess waste of gas, thereby greatly eliminating the attendant danger of explosion or fire and property damage, as well as the economic losses which may possibly result from a break in the pipe line.

Because of the sensitiveness of the control system and quick action in isolating the section of broken pipe line, repairs can be started and service restored in the main system with a minimum amount of delay.

Static Charge Danger in Gas Distribution

By W. M. HENDERSON

Southern California Gas Co., Los Angeles

RECENTLY there was released by the National Fire Protection Association a report of an investigation on Static Electricity in industry. Although the report makes no reference to the gas business, nevertheless there was disclosed certain phenomena that must be reckoned with by employees engaged in gas distribution.

Static electricity can best be defined as stationary electric charges; yet it is produced only by motion and the accumulated charge is stored only in a nonconductor. It seems so inconsistent for a stationary force to be produced by motion and then to be accumulated on a nonconducting element! That is why it receives such scant attention.

The generation of static cannot be prevented. The accumulation can be avoided by suitable grounding, or by maintaining a surrounding atmosphere of high humidity.

The hazard exists when voltage builds up on an object to the extent that a spark discharge may occur; and the danger here is when the spark occurs in an atmosphere of combustible gas.

Under suitable conditions, such as continuous motion and contact between two objects (one insulated in an atmosphere of low humidity), the voltage on the insulated object may rise between 2000 and 15,000 volts. This is a terrific electric pressure, and it is fortunate that the conditions for its generation are rather rare.

The typical source of a static charge in gas distribution is the flow of gas in a pipe line. But, as the pipe is grounded and the gas in motion is subject to turbulence, the static is discharged to ground as rapidly as generated. However, when the gas is allowed to issue from a pipe, or to escape at high velocity from a leak, it leaves such opening with the gas particles heavily charged with static. If such gas impinges on an insulated body, the object will accumulate the charge.

The ability of the human body to become charged is a function of the surrounding atmosphere, the dryness of the skin, or the clothes of the individual. That is, the degree to which the body is insulated from ground determines the extent of the static charge.

Rubber boots, or rubber-soled shoes, act as an insulation and permit static to build on the body. Leather-soled shoes are better conductors, and allow static to drain to the ground.

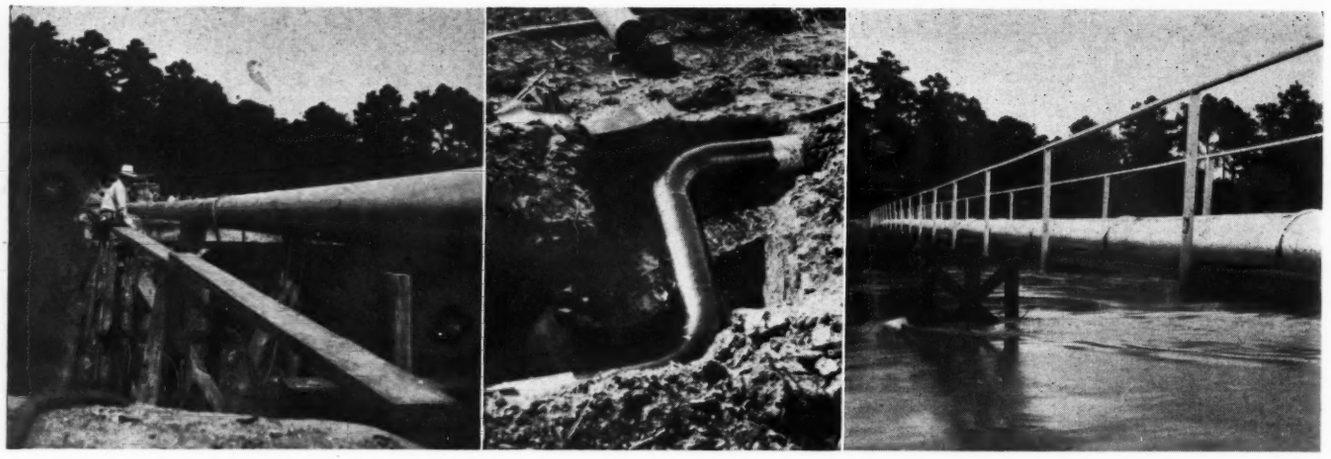
If the conditions are right, a workman, exposed to a stream of escaping gas, will pick up a charge of static; it will accumulate and rest in his clothing until such time as it is in close proximity to a ground, when it will discharge across an air-gap in the form of a spark. This may result in ignition of the gas and possible serious burns.

As it is difficult to determine when a person is charged with static electricity, there is no forewarning of the phenomenon. The safe practice is not to allow gas to blow to atmosphere—use means for preventing the escape of gas when tie-ins or extensions of gas lines are required. In cases of leaks or line breaks, never allow a workman to expose his body to escaping gas.

REFERENCES:

"Protection Against Static Electricity" by J. M. Pearson, Sun Oil Co., Philadelphia, in paper to American Petroleum Institute meeting at Chicago, Ill., Nov. 12, 1940.

Report of Committee on Static Electricity, Edgar J. Meyers, Chairman, in Part II, April, 1941, Quarterly of National Fire Protection Association.



AT LEFT: View of Houston Natural Gas Corporation's bent type 16-in. pipe line bridge. CENTER: The expansion loop. RIGHT: A close-up of the bridge showing the high water level.

Building a Bent-Type Pipe Line Bridge

WHEN R. M. Hutchison, chief engineer of the Houston Natural Gas Corp., Houston, Texas, completed his investigations concerning the cost of building a 16-in. pipe line bridge across a stream which was 180 ft. from bank to bank, he found that a bent-type bridge could be constructed for approximately 50% of the cost of a suspension bridge.

Calculations for a length of span showed that bents could be placed 103 ft. apart and the pipe could still support itself. However, if the bridge were subjected to excessive floods or high waters, this length of span would probably prove impractical, so a span of 55 ft. was chosen for the distance between the bents of the bridge.

Four 8-in. creosoted pile bents were driven to a penetration of 15 ft. These bents were capped with cross timbers and the pipe line placed on the bents. Then the line was raised on rollers made of 8-in. pipe nipples. U-bolts circle the pipe and pass through slots in the nipples, and also through the cross timbers.

A walkway built along either side of the pipe line was supported by 4 x 4 cross members which were held flush with the bottom of the pipe by U-bolts. These U-bolts were tack welded to the pipe to prevent side-slipping. There is an 8-in. space between the walkway and the pipe which was left there to enable the men to paint the underside of the pipe with less difficulty. As a safety measure, gates were built at each end of the bridge to prevent the public from passing back and forth.

Expansion was provided for by means of expansion loops placed at both ends of the bridge. These loops were buried to loose sand so that free movement could be had whenever necessary. They are fabricated from 90° welded ells.

The railings were made of channel irons and scrap 1¼-in. pipe and the steel work was primed with red lead and painted with aluminum paint to preserve it. All timbers in addition to the pipe were pressure creosoted and all bolts used in construction of the bents were galvanized. The pipe was electric welded with a minimum of five beads on each weld to provide extra strength.

In constructing the bridge Mr. Hutchison used false work for his pile-driving machine and as one pile was driven the pile driver was moved forward on the false work to the location of the next pile. The four pilings and all other construction necessary to install the pipe across the waterway required only 12 days.

The pipe line was placed at an elevation of 2 ft. higher than the high-water flood stage, and shortly after its completion a flood occurred. The flood reached a point about 3 ft. below the bottom of the pipe. Heavy timbers, brush and debris which struck the bents during the flood had no effect on the structure.

It is estimated that the small amount of steel in the bridge will make the maintenance expense far less than it would have been if the bridge were a suspension type and required more cable and steel work. Also, the maintenance expense of any type of line that is suspended in the air is expected to be less than that of a buried pipe.

The engineer believes that this type of construction seems adaptable for narrow crossings where one bent in the middle of the span is sufficient to support the crossing, and also that this kind of structure is more rigid than the suspension type.

The bridge crosses Brays Bayou near the city limits of Houston and is a part of the distribution system of the Houston Natural Gas Corp., Houston, Texas.

■ ■

Gas Service Co. Builds Line To Lake City Ordnance Plant

The Gas Service Co., Kansas City, Mo., has just completed the construction of a 9-mile pipe line from a point east of Independence, Mo., to the Lake City Ordnance Plant, at Lake City, Mo.

B. C. Adams, president and general manager of the Gas Service Co., said that the cost of building the 8-in. line to serve the ordnance plant was approximately $75 000. The pipe, manufactured by the Republic Steel Corp., is protected by hot enamel coating and asbestos felt wrapping.

The 465-hp. compressor station for the line is located in Independence. Operating pressure of the line is 100 lbs. Maximum capacity is 8000 M.c.f. and present operating capacity, 4000 M.c.f.

■ ■

The Philadelphia Co. Plans 120-Mile Natural Gas Line

The Philadelphia Co., Pittsburgh, Pa., has under consideration the construction of a 190-mile natural gas line which will be built if the steel industry requires more gas for use in producing defense materials, is was reported recently.

The new line would be built from the eastern Kentucky gas fields to tie-in with present lines of the system in northern West Virginia. Kentucky West Virginia Gas Co. is making a preliminary survey.

F.P.C. Asked to Authorize 800-Mile Line to Tennessee

THE Federal Power Commission has been urged to authorize construction of an 800-mile natural gas pipe line from the southern Louisiana gas fields to Tennessee by State Utilities Commissioner Leon Jourolmon.

According to Washington sources, the Commission is expected to act at an early date on Mr. Jourolmon's report and on the petition of the Tennessee Gas and Transmission Co. to build the line.

The gas line may play an important part in solving the defense power problem in the southeastern area, if it can be built in six months as was testified by Curtis B. Dall, head of the petitioning company. The gas company proposed to spend $20,000,000 to build the pipe line.

Mr. Dall further testified that he could build the line and make natural gas available to consumers in Nashville, Chattanooga, Knoxville and Asheville, N. C., at rates substantially below present gas rates.

Mr. Jourolmon said that the larger volume of gas offered by the Tennessee company would permit substitution of gas for electricity in many industrial processes such as aluminum manufacture. The natural gas would be used for heating and hardening, and the electricity could be released for the process of electrolysis.

Mr. Dall said that the line would supply approximately 48,000,000 cu. ft. of gas per day during the first year of operation. It would be a 16-in. pipe line from the fields in southern Louisiana to a point north of Pulaski, where it would split into two eight-in. lines. One would come north through Columbia to Nashville. The other would go east to Chattanooga, Knoxville and Ashville.

■ ■

Southern Natural Gas Co. Is Building 135-Mile Pipe Line

Native southern pine forests and swamp lands are being cleared and trenched for the laying of a 14-in. gas pipe line 135 miles long in northwestern Louisiana by the Southern Natural Gas Co., of Birmingham, Ala., as a part of its general expansion program.

The new line, now under construction, runs from the Joaquin fields, near Logansport, La., to the gas company's Perryville compressor station near Monroe, La., where it ties into the main line which serves the South.

During July, two organizations worked on the line. One worked eastward out of Logansport and the other operated eastward from Ruston. The B. & M. Construction Co., Oklahoma City, Okla., has the contract for construction of the all-welded, enamel-coated 14-in. line. (Photo at right.)

The Southern Natural Gas Co. plans construction of about 25 miles of gather system lines in the Joaquin field to feed the new line as soon as it is completed, according to I. E. McCastin, engineer for the B. & M. Construction Co.

■ ■

Pipe Line Patrol Planes Receive Preference Rating

E. R. Stettinius, Jr., Director of Priorities, announced July 22, that a new priority plan has been designed to facilitate the production of civilian aircraft for Civilian Pilot Training Schools, for Home Guard units, for pipe line patrol and for other specific purposes, according to a bulletin released by the American Petroleum Institute.

A preference rating of A-10 will be assigned to 27 producers of aircraft and aircraft items. The rating may be used to speed delivery of material going into repair parts and accessories of such planes as well as material going into new planes to be used for the purposes listed. Copy of the order (Release No. A-7) will be sent upon request.

■ ■

Northwestern Utilities, Ltd., Plans Expansion Program

Northwestern Utilities, Ltd., Edmonton, Alberta, Canada, will spend approximately $371,900 this season on improvements to its natural gas system. The outlays include $191,700 for duplication of 9½ miles of the transmission line to the Viking field. Other items include $37,000 on new meters, mains, and extensions in Edmonton, $102,000 for drilling five wells in the Kinsella field, and a number of small items.

In addition, the company will, if the necessary franchises are approved, spend approximately $1,500,000 on a new 100-mile transmission line and local distribution facilities to serve communities between Vegreville and Red Deer, Alta.

■ ■

Transmission Line Begun for Oklahoma Natural Gas Co.

The Works Progress Administration began work July 15 on a natural gas transmission line which will carry gas from the Oklahoma Natural Gas Co. main line, near Choctaw, Okla., to the distribution system at Jones, Okla.

Twenty-six thousand feet of 4-in.-line and the distribution system is to be completed within three months. Last year the town of Jones voted $15,000 in bonds to purchase material for the gas system. This was supplemented by a $25,000 WPA grant.

■ ■

Hastings, Neb., Plans Natural Gas System

Plans and estimates for the installation of a new gas distribution system in Hastings, Neb., will be drafted by F. C. Devlin, gas engineer of Wichita, Kan. The plans are to be available to the city within 30 days and the cost is not to exceed $250,000.

United Gas Pipe Line Co. Plans 140-Mile Pipe on Gulf

TO SUPPLY the increasing demands of National Defense industries in lower Louisiana and along the Gulf Coast to Pensacola, Fla., the United Gas Pipe Line Co., Shreveport, La., will soon start construction on a 140-mi. pipe line which will run from the gas fields of southern Louisiana across Lake Pontchartrain and east to a point north of Gulfport, Miss. It is estimated that 56% of the gas carried by the line will be used by companies filling national defense contracts.

The crossing of Lake Pontchartrain will be the longest water pipe line crossing in the world. A single line crossing will traverse the 25 miles of water from the southwestern bank to Mandeville on the northern shore.

About five miles north of Mandeville, a 10-in. line will run to a point above Covington, where it will feed into the Bogalusa lateral. The main 16-in. line will run east to a point near Gulfport, gradually reducing in size from 16-in. to 12-in. pipe. At this point it will tie in to the existing 12-in. line.

Three crews of engineers have been at work on the surveying of the line and actual construction is expected to start immediately. The government priority board gave priority to the order for pipe because of the importance of getting additional fuel to national defense industries along the line.

■ ■

El Paso Natural Gas Co. Builds 28-mile Pipe Line

The El Paso Natural Gas Co. has just constructed 28 miles of pipe line in the territory adjacent to Douglas, Ariz. The work began at a compressor station located six miles east of Douglas and extended 28 miles west through the Sulphur Springs valley. The new loop line runs parallel to the old line and was laid to take care of the increased gas demand.

The crew of 100 men has moved toward Lordsburg, N. M., where a 12-in. loop line will be laid 39 miles. This line begins west of Lordsburg along the right-of-way and stops 18 miles east of Rodeo, N. M. This is to be a double line to insure more capacity and will take approximately 30 days.

Tractor backfilling the 14-in. gas line which is being laid through swampy pine timber land from Logansport to Monroe, La., by the B & M Construction Co., Oklahoma City.

Consumers Power Co. Changeover Approved

MICHIGAN'S Public Service Commission has cleared the way for construction of a $4,633,000 natural gas line by Panhandle Eastern Pipe Line Co. of Kansas City, Mo., which will serve 66 municipalities in Michigan.

The commission approved petition of the Consumers Power Co., Jackson, Mich., to substitute natural gas from the Amarillo, Texas, and Hugoton, Kan., gas fields for the present manufactured gas and also approved a 15-year contract between the utility and the Panhandle Eastern company for transportation of the gas to Michigan. At the same time the commission approved a schedule of natural gas rates that are said to mean an average of 21% reduction to domestic gas users and a 38% reduction in space heating costs.

The first step in carrying out the program, which calls for the laying of a total of 435 miles of pipe, will be the letting of contracts for 45 miles of 8-in. pipe from the vicinity of Peoria to Galesburg, Ill., and 8 miles of 4-in. near Abingham, Ill., according to J. C. Reinbold, general superintendent.

The company will ask for bids on more than 146 miles of loops and 236 miles for a branch-line system in Michigan. The mileage and sizes of pipe as summarized by C. H. M. Burnham, chief engineer of the company are:

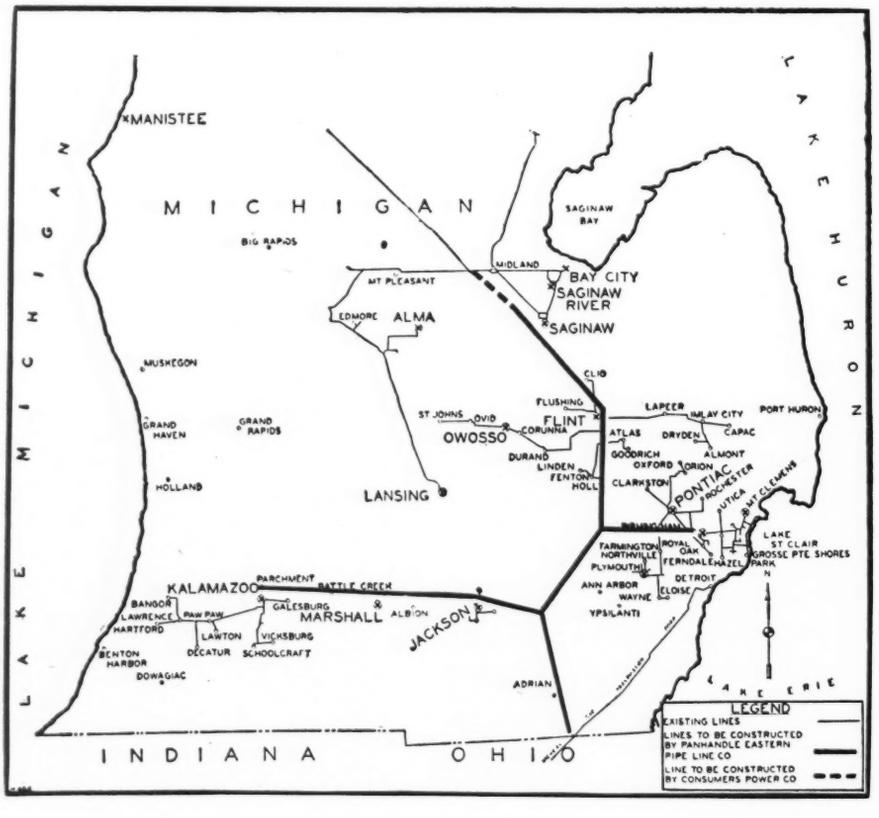
LOOP CONSTRUCTION

Section I—Kansas and Missouri	26 in.	30.01 mi.
	24 in.	16.37 mi.
Section II—Illinois	24 in.	70.21 mi.
	20 in.	20.21 mi.
Two Mississippi River Crossings	12. in.	.95 mi.
Four Illinois River Crossings	12 in.	.49 mi.
Galesburg, Illinois	8 in.	43.00 mi.
	4 in.	8.00 mi.
	2 in.	.50 mi.

MICHIGAN

Section I	20 in.	32.5 mi.
	18 in.	31.3 mi.
	16 in.	35.1 mi.
Section II	12 in.	63.5 mi.
Section III	12 in.	20.8 mi.
	16 in.	61.4 mi.

As a result of the expansion of Panhandle Eastern Pipe Line Co., by which it acquires the facilities of Michigan Gas Transmission Corp., a 236-mile branch line is planned which will have laterals serving Jackson, Marshall, Battle Creek, Kalamazoo, Flint, and the area beyond Saginaw. The part of line which goes to the Detroit area will run eastward south of Pontiac and terminate at Clawson, Mich. The line will connect with the Michigan Gas Transmission line at the point where it crosses the Ohio-Michigan state line. This branch-line system will include pipe in sizes of 12-in., 16-in., 20-in., and 24-in.



Route of the pipe line to be constructed by the Panhandle Eastern Pipe Line Co., Kansas City, Mo., which will bring natural gas to 66 Michigan communities.

Hope Natural Gas Co. Plans 826-Mile Line to Louisiana

LORIN L. TONKIN, president of the Hope Natural Gas Co., Clarksburg, W. Va., announced recently that the company is planning to build a natural gas pipe line to connect Louisiana gas fields to its distributing systems in Ohio, Pennsylvania and West Virginia.

Details of the new project were announced at a hearing in Washington before the Federal Power Commission on a petition by the city of Cleveland and the Pennsylvania Public Utilities Commission seeking a reduction in natural gas rates to retail affiliates in Ohio and Pennsylvania.

Cost of the new line, to stretch 826 miles from the heart of the northern Louisiana gas fields to the Cornwell station 20 miles north of Charleston, N. C., was estimated by Mr. Tonkin to be about $25,000,000.

The line was made necessary, he said, by the inability of the company's 3500 gas wells in West Virginia, Ohio and Pennsylvania to assure adequate future supply for increasing industrial and domestic consumption in the Cleveland, Youngstown and Pittsburgh areas. There was a possibility, he added, that lines would have to be constructed later to southern Louisiana and East Texas gas fields.

The present extension, however, for which 11 survey crews are already in the field, would start at Monroe La., cross a corner of Arkansas, cross the Mississippi River near Greenville, Miss., pass through Tennessee about 15 miles from Nashville, through Kentucky about five miles from Lexington, through West Virginia about five miles south of Huntington and on to the Cornwell station.

It would be a 20-in. line with compressor stations built at intervals of about 150 miles along the route and would turn gas into the company's present system of 4400 miles of gathering and distributing lines in the northeastern states. The line would require construction of a dehydration plant and a parallel company-owned telephone line.

Home Natural Gas Co. is a subsidiary of the Standard Oil Co. of New Jersey and is affiliated with the East Ohio Gas Co., a distributing company. Its general superintendent is Charles C. Reed. L. G. Kincheloe is superintendent of the pipe line department. Recently the company moved its headquarters from Pittsburgh to Clarksburg, W. Va.

St. Paul City Council Studies Gas Application

Application of the Minnesota Gas Corp. for franchise ordinances permitting it to provide natural gas service in St. Paul, Minn., were taken under advisement recently by the City Council.

The corporation's outline of prospective service was referred to the utilities committee for study. The gas corporation is asking for a 20-year franchise to supply natural gas for industrial, commercial, and domestic uses. The application was presented by William Weidlein manager.

Summer Air Conditioning

6. Servel, Inc.'s New All-Year Load Building Unit Cools, Filters, Ventilates, Humidifies, Heats

By JOHN K. KNIGHTON

Manager, Air Conditioning Division, Servel, Inc., Evansville, Indiana

J. K. KNIGHTON

JOHN K. KNIGHTON, author of this sixth article in a series on gas-fired air conditioning equipment, is an authority in the field of refrigerating and air conditioning equipment. His career has been marked by diversified experience and solid achievement. From a position as regional manager for the Delco Light Co., later the Frigidaire Corp., he went to Washington, D. C., as a dealer for air conditioning and commercial refrigeration equipment. From this post he moved to the Kelvinator Corp. as manager of the air conditioning division, going from there to the Carrier Corp., in charge of distribution, and then to Servel, Inc., as manager of its new gas air conditioning division. Mr. Knighton served in the U. S. Navy in the World War and for several years thereafter was chief special investigator with the Department of Industrial Relations of the State of Ohio.—Editor.

FOR the first time in the history of the gas industry, there is a home appliance on the market which combines summer cooling and winter heating in a single unit operated by gas. This history-making product is the new Servel all-year air conditioner, the first equipment for the home that combines all the functions of complete all-year air conditioning in one simple unit.

Designed, developed and perfected by Servel engineers, built exclusively for residential use and tested and proved in actual installations under every type of atmospheric condition in all parts of the country, this new gas-fired air conditioner represents the ideal load builder from the gas company point of view.

As a selling story for the utility, it offers the customer winter and summer cooling, year-around air circulation and thorough air cleansing, all from a single unit operated with no more effort than the flick of a switch on a thermostat control installed on the living room wall. As a load builder, it offers the utility year-around gas consumption, replacing the existing heating load where gas is already in use, and adding to this the summertime cooling load which represents an entirely new market.

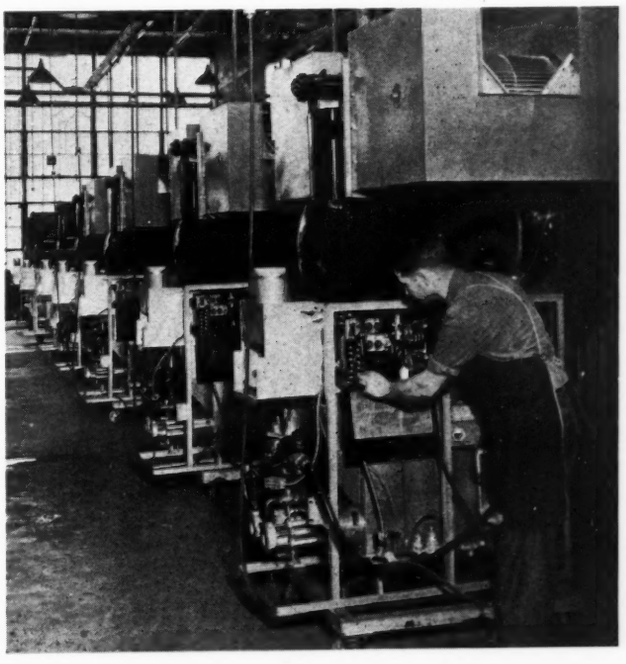
Both cooling and heating are supplied by a dependable, permanently silent unit which operates without any moving parts. Therefore, there is nothing to wear out and long life is guaranteed. The heating system, using steam at atmospheric pressure, eliminates all possibilities of a hazardous condition. Water, the safest of all liquids, is used as the refrigerant in the cooling system.

With this kind of product, offering these advantages, it may be easily seen why the new Servel all-year air conditioner represents the ultimate in gas-fired air conditioning.

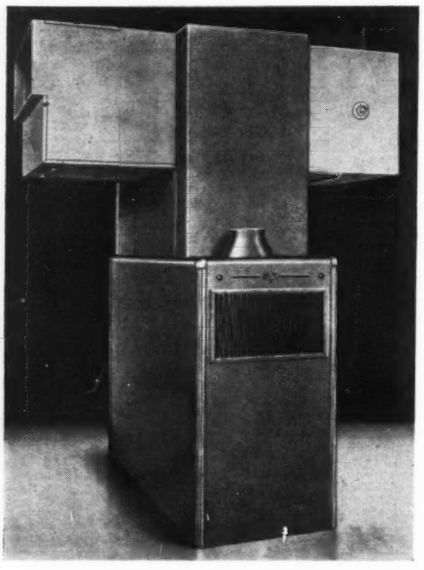
Realizing that gas fuel for all-year residential air conditioning is the ideal source of energy in a young and potentially large industry, the management of Servel, Inc., has spent large sums of money during the past seven years in the development of a practical unit. Servel research on gas air conditioning dates back to 1934, when work was started on a fairly large scale.

Servel began with the distinct advantage of having a perfectly good absorption refrigeration system already available — the Electrolux or Platen-Munters system. Adapting this system of refrigeration to the problem at hand, many interesting questions were encountered before any practicable conclusions were reached. After years of work, we reached the stage where a successful unit seemed to be just over the horizon, only to be overshadowed by a new and more promising youngster dubbed "the water unit."

Our objective was to create a unit that would fulfill all the requirements of air cooling, filtering, ventilating, humidification and heating. With this in mind, the water unit was designed to be very flexible, so that relatively small heating units could be used with large cooling units, and vice versa. A major advantage of the cooling unit is that water is the refrigerant and, naturally, can be used with absolute safety if a large-capacity cooling unit is required. Since the pressures within the system are all below atmosphere, the pressure necessary to operate the system can be maintained by columns of solution and water. For this reason, the cooling unit has no moving parts in its system.



The final assembly line in the manufacture of the Servel all-year gas air conditioner at the pilot plant in the Servel factory, Evansville, Ind.



The Servel all-year gas air conditioner.

Steam from a single source can be used to heat the generator of the unit for summertime cooling and to supply heating coils in the winter. The same burner and control system can be used for summer and winter operations. This is made possible by the highly sensitive Selectrol thermostat which was designed for use especially with the all-year air conditioner. Three small switches provide easy selection of winter or summer operation or ventilation only. The Selectrol modulates the burner operation in two or more steps to provide cooling or heating in response to changing load requirements.

Manufacture of the Servel all-year air conditioner, as yet being offered to the public on a highly restricted scale, is carried on in a "factory within a factory," the specially-built pilot plant in the Servel factory in Evansville, Ind. The idea of using a pilot plant to introduce the new air conditioner to the manufacturing organization was decided upon in November, 1939, and a separate building of 7200 sq. ft. floor space was erected for this purpose. Operations began in April, 1940.

At present, production is limited to a point consistent with the highest standards of precision workmanship and testing under engineering control.

In equipment, the pilot plant is a marvel of compact efficiency. It is equipped to perform highly specialized operations, and many production experts have declared it to be one of the best examples of its kind in the entire country. Virtually all of the component parts which are assembled in the complete air conditioner are manufactured in this plant. These include the economix gas burners, atmospheric steam generators, heating coils and humidifiers, refrigeration and dehumidification coils, the Selectrol and hundreds of other parts.

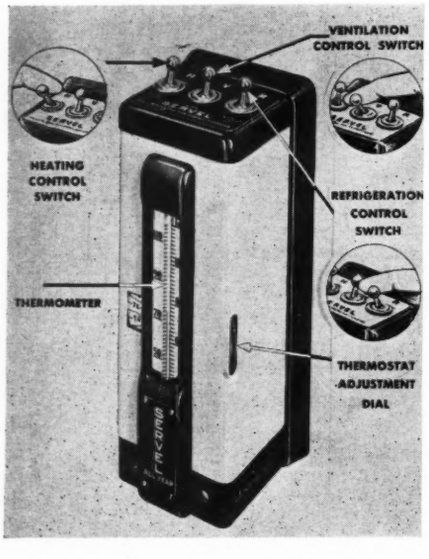
The third chapter in the story of the Servel all-year air conditioner, after engineering and production, is sales. This chapter, logically enough, is one that will be of greatest interest to gas companies.

The gas company recognizes the value of gas air conditioning from the load-building standpoint. It is definitely desirable. Therefore, acknowledging the need from the point of view of both the public and the gas company, gas air conditioning should have a brilliant future.

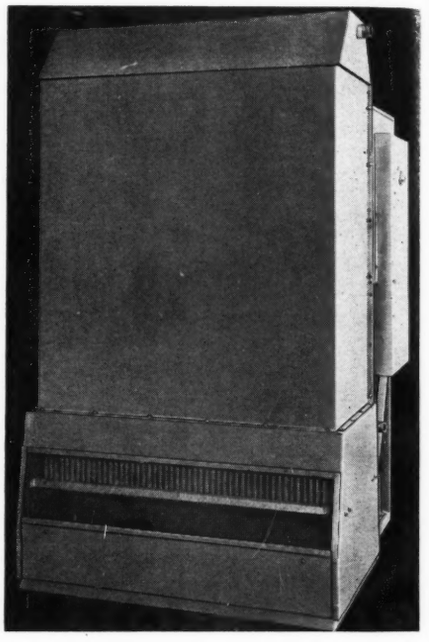
The market and potential for this new product is divided into two classes, new construction and existing construction. New construction is of first importance because here are prospects with a demand for heating and a desire for cooling. The selling job shouldn't be too difficult to convert the latter from desire to demand.

The second classification is existing construction, by far the greatest in potential, but handicapped by the fact that the heating demand will not be achieved until such time as an existing unsatisfactory heating system has to be replaced. Therefore, new construction comes first and existing construction comes second. The immediate job of gas utilities now selling the new all-year residential air conditioner is to sell those prospects with the obvious ability to buy. This is the segment of the market that requires first attention.

The Servel all-year gas air conditioner has passed the stage of field testing on the product, and is now in a stage of sales testing and research on market and distribution problems. To this end, Servel is now cooperating with utility companies in many sections of the United States.



The Selectrol, control center of the unit.



The cooling unit.

To date, sale and installation of this new product have necessarily been limited to those sections of the country which seem to offer the greatest variety of operating conditions. Today it is in use in homes in Maryland, Wisconsin, Virginia, Indiana, Missouri, Louisiana, Texas, California and New York. Next it is hoped to introduce a modified sales program in areas where we have been through a preliminary sales-testing and research activity. We also plan to extend our sales testing into many new areas.

The problem of an all-year gas-fired air conditioner was a challenge to Servel that our company accepted and has fully met. We are in the gas-fired air conditioning business because we are interested in promoting the use of gas as a fuel. Our long association with the American gas industry as the manufacturer of the only completely automatic, continuous absorption-type gas refrigerator on the market proves this interest.

We look to the future with justifiable confidence. A desire to be comfortable is a natural human trait. As people spend more time in air-conditioned stores, shops and offices, they will demand the same comfort in their homes. This creates a new business and a new activity. With the right kind of product now at our disposal, and with the gas industry aggressively interested in this product as a new and greater load builder, we are convinced that a great future lies ahead for the new Servel all-year gas air conditioner.

A Gas Direct-Fired Ceramic Kiln

By FREDERIC O. HESS

The Selas Company, Philadelphia, Pa.

THE COMMITTEE on Industrial Gas Research of the American Gas Association, The Public Service Electric and Gas Co. of Newark, N. J., and Lenox, Inc., of Trenton, N. J., deserve high tribute for creating the opportunity to install and test for the first time a full-sized production, direct-fired, gas-radiant-fired kiln at the Lenox Pottery. This subject was covered in a paper, "Important New Developments in Applying Direct Radiant Gas Heat to Ceramic Firing," presented by Mr. Hess before the A. G. A. Industrial and Commercial Gas Section Conference on Industrial Gas Sales, Lord Baltimore Hotel, Baltimore, Md., March 13 and 14, 1941.—(Abstract by GAS.)

THE Lenox Pottery, of Trenton, N. J., makers of fine china, decided to install a continuous production kiln, and modernize their bisque firing to take care of their increasing production requirements. Several bids were requested from different kiln manufacturers, and all quotations received were restricted to an oil-fired kiln indirect fired through a muffle, for reasons of apparent economy and atmosphere conditions within the kiln. Based on performance figures of numerous existing kilns, it was stated that oil firing would be approximately 50% of the cost of gas firing, and that because of the muffle construction the work could be guaranteed because there would not exist any gassing of the ware or effect of sulphur on the ware. In other words, within the muffle could be maintained the atmosphere which is required for the satisfactory firing of fine china.

Direct Heat Cuts Cost

Therefore, according to the kiln manufacturers, gas was not in the picture, and Lenox merely had a choice along the lines of technical construction and initial cost of oil-fired kilns. Competitively speaking from the gas angle that presented a pretty hopeless picture.

It so happened, however, that the A.G.A. Research Committee and Public Service Electric & Gas Co., Newark, N. J., were familiar with developments which were taking place with radiant gas heat and with some of the results which we were able to show by applying radiant heat direct to ceramic ware.

The Research Committee was looking for an opportunity to demonstrate to the ceramic industry the possibilities that could be opened up in quality, high temperature, radiant gas firing. The Committee had previously established excellent relations with Lenox in connection with glost and decorating projects which it had carried on in conjunction with Lenox. Lenox was therefore approached on that basis.

It was pointed out that with this new method of firing gas might well be in a competitive position; in fact it might prove to be ahead of a muffle type kiln in operating results. Direct firing would, of course, eliminate the muffle and the customary and costly maintenance. Direct radiant firing would furthermore produce better heat distribution within the firing chamber because heat could be applied exactly where needed without depending on the conduction through the muffle. It was believed that saggers and flint packing could also be eliminated.

The difference in fuel cost should substantially decrease because of the direct application of heat; the effective utilization of the gases in the firing zone for preheat in the preheating zone and the higher combustion efficiency of gas as a fuel in comparison to oil as a fuel. Careful and conservative calculations indicated that the difference between oil and gas firing should be substantially reduced. An additional advantage of direct gas firing, it seemed, should be the ability to secure shorter firing cycles or increased production from the same size kiln.

These arguments and this story were sufficient to arouse interest in the executives of Lenox, Inc. After a number of radiant gas burner demonstrations and some experimental firing tests in radiant fired experimental kilns; after discussions with the A.G.A. Research Committee; Public Service Co.; the kiln builder; namely, Allied Engineering Co. and the radiant heating equipment manufacturer—Lenox finally decided to have a gas kiln installed, with the specification "direct fired by radiant gas burners."

This experimental-production gas fired kiln is of the circular, rotating hearth type; has a mean diameter of 40 ft. or a total kiln length along the center line of 125 ft. 8 in. A cross-section is shown in Fig. 1. The loading height of each car is 36 in. and the loading width 30 in.; the space between the bottom of the charge and the top of the car is 6 in. There is a total of 20 cars in the circle, three of which are in the loading space which has a total length of 17 ft. 8 in. The preheating zone is 46 ft. long, the firing zone 26 ft. and the cooling zone 36 ft. In the preheating zone and firing zone combined there was initially installed a total of 100 radiant gas burners distributed as follows:

The 34 preheating burners were all placed approximately even with the bottom of the charge. The burners were spaced low to make sure that the top of the car and the bottom of the charge came up to temperature at the same rate as the top of the charge.

Individual Burner Regulation

The total number of burners in the firing zone is 66, which were arranged in three tiers; 33 were flush with the bottom of the charge; 23 approximately 1 ft. higher, and the balance of 10 were arranged approximately 2 ft. above the bottom of the charge or 1 ft. below the top. Obviously the burners were installed on both sides of the kiln, properly proportioned to obtain uniform heat input from the inside wall as well as the outside wall, with due consideration for the wall losses and the difference in load between inside and outside of ware. The burners are supplied with an air-gas mixture from a premixing machine.

This is, of course, a considerably larger number of burners than is normally installed in a kiln of this size, when using conventional burners. However, the single fuel supply line, the positive air-gas mixture control, and therefore atmosphere control within the kiln, the opportunity to regulate individual burners without effecting the adjustment of other burners, and the wide range of burner capacity which the premix system affords amply justify that type of combustion system for such an installation.

The number of burners in actual operation is 34 in the preheating zone and 53 in the firing zone, or a total of 87 out of the 100 installed.

Results which have been secured from this radiant heated kiln are:

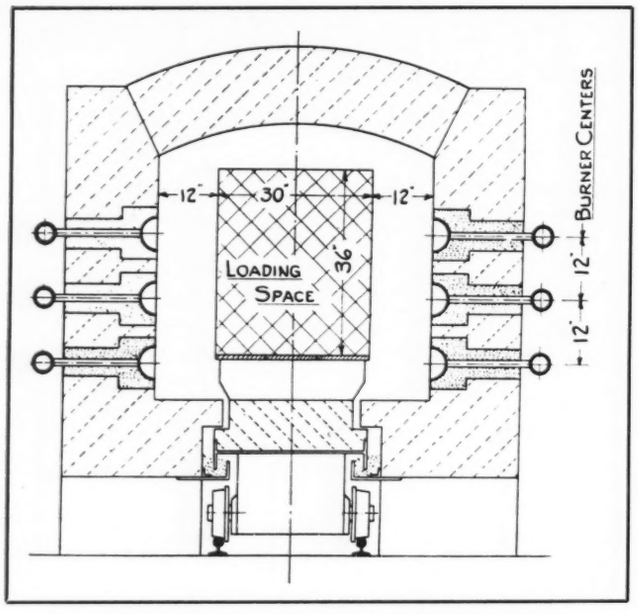


Fig. 1. Diagrammatic cross section of kiln firing zone.

The temperature distribution which is carefully checked every hour by 12 thermocouples, and on every fourth car by several sets of cones distributed throughout the car, is unusually good. Careful checks of temperature by outside experts during the early stages of kiln operation disclosed that the top of the charge and the bottom of the charge throughout the firing zone were at identical temperatures, but the center of the charge was 7° higher than either top or bottom. It was a simple matter to compensate for this 7° differential by a slight adjustment of the two valves controlling the burners in the center tier.

This fact clearly demonstrated that with radiant burners heat can be placed where wanted and accurately directed. Incidentally, no differential could be shown across the width of the car on any level. The atmosphere within the kiln is kept uniformly with about 6% excess oxygen. This excess oxygen is due to air entering from the cooling zone and does not decrease combustion efficiency.

30-Hour Firing Schedule

The kiln is presently on a firing schedule of 30 hours, one revolution of the entire kiln hearth taking 30 hours. This compares with the originally estimated cycle of 36 hours, on which the oil figures were based; but even 30 hours, it is believed, does not represent the minimum because the kiln was actually operated for several days on a 28-hour schedule and the indications are that it can be operated at a still faster schedule if, and when, the balance of the production facilities of Lenox are speeded up.

The production per day, including the setters, amounts to 14.5 tons and during 5 months in continued operation not a single piece of ware had to be rejected as a firing loss. This is unusual, more so because it includes the very first pieces sent through the kiln after it was up to temperature.

The actual gas consumption today is 3200 cu. ft. per hour or 76,800 cu.ft. per day (525 B.t.u. per cu.ft.). Expressing the same figures on a B.t.u. basis, the B.t.u. input per ton on the gas kiln is 3,250,000 B.t.u.'s which is based on a 28-hour cycle for gas firing.

Before installation of this continuous, experimental, tunnel kiln the same operation, bisque firing, was performed in a number of periodic oil kilns. In November, 1939, which is one of the peak months at Lenox for bisque firing, the oil cost of the entire production amounted to $1636 for the month. It required the firing of 7 periodic kilns per week. In November, 1940, the entire bisque firing was performed in the continuous gas fired tunnel kiln; the production rate was double that of November, 1939, and the total gas cost was $793 for that particular month.

This cutting of the cost of the fuel to one half for double the production must of course be largely credited to the *continuous* operation over the previous *periodic* operation and to the shorter cycle. Nevertheless some of the saving is due to the fact that better ware is being produced today in the continuous kiln because of the uniform heat distribution, and also because of the controlled and controllable firing cycle in the kiln.

Pressure-Relief Device for Furnaces

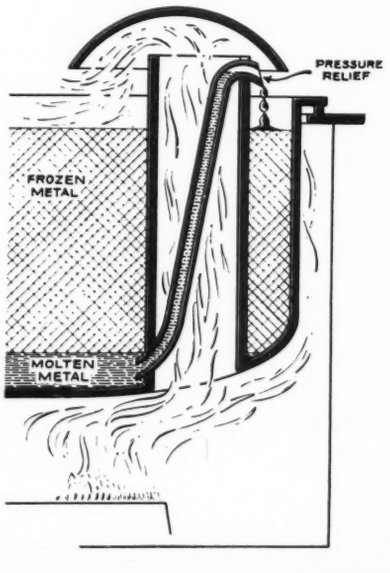
A DEVICE which appears to have solved a problem which long has troubled the designers and users of soft metal melting furnaces recently was patented by Henry Hartmann, an industrial sales engineer for The Brooklyn Union Gas Co., Brooklyn, N. Y.

The device consists of a tube which runs from a point near the bottom of the metal pot, up through the hot flue gas passage, to a point just above the surface of the metal being melted. This tube serves to relieve the tremendous pressure which is generated in the bottom of the pot when heat is applied to a pot filled with "frozen" metal.

The tube acts much the same as that in a coffee percolator. It permits the molten metal under pressure to flow to the surface, thereby relieving the pressure. On the basis of extensive tests under widely varying conditions, it is believed that the device will prevent "blowoffs," cracked pots and (in the case of bottom draw-off furnaces) leaky valves.

Mr. Hartmann got the idea for the percolator tube while making a service call on the United American Metals Corp. of Brooklyn. This firm—nationally known in the printing industry—recently began manufacturing remelt furnaces. It was seeking a solution to the problem of leaky bottom draw-off valves when the thought occurred to Mr. Hartmann that a stainless steel tube, properly placed in the flue gas passage, might solve the problem. Subsequent experimentation proved the idea sound and a patent was obtained.

The patent has been assigned to the United American Metal Corp. and a number of remelt furnaces in which the pressure-relief device is embodied already are in operation in some of the most important newspaper plants in the United States.



Training Servicemen

By the Use of Recurring Service Orders

PRESENTED HEREWITH is a paper, "Training Servicemen by Use of Recurring Service Orders." This study, which was a contribution from the members of the Subcommittee on Appliance Servicing, H. G. HORSTMAN, Public Service Co. of Indiana, Indianapolis, Ind., chairman, was presented before the Eighteenth Annual Distribution Conference of the American Gas Association Technical Section at Hotel William Penn, Pittsburgh, Pa., April 21-23, 1941.—Editor.

VOLUMES have been written about training servicemen. Schools, apprenticeship courses and job training are methods that have proved both practical and effective. The most recent method is based on the use of recurring service orders. Advantages derived from this training are proving so attractive that interest is growing rapidly among gas companies. For the benefit of the industry, therefore, a study has been made based on experience and data supplied by various companies.

There is probably nothing which upsets a customer more than to make it necessary for him to call several times to get a job done right. At the same time, there is nothing in the service department more expensive than recurring service orders. From another angle, however, they provide opportunities for natural training which, experience has shown, results in those substantial benefits which come from reducing the number of repeat calls.

Invariably when anyone is confronted with the statements—

1. Forty to 50% of all service calls (excluding meter orders) are recurring service orders—orders for work to finish jobs that were not done right on the first call, and

2. Thirty-five percent of our customers who call on us for service are inconvenienced by having to call two or more times to get the job done right.

he will say, "Well, that doesn't apply to our company," but if he investigates he will find that over a six-month period it will probably require about 1750 calls to satisfy each 1000 customers who call for service. Figures show this to be uniformly true in the case of all companies studied, even those almost 2000 miles apart being in almost exact agreement. Furthermore, the analysis of recurring service calls showed that the experience of these widely separated companies were almost identical (Table No. 1):

In the case of all companies, as Table No. 1 shows, 87% to 89% of the recurring service calls had had from one to three previous calls, or in other words it was necessary to make from two to four service calls. In the case of all companies, 11% to 12% of all recurring service orders are:

The important benefits to utility companies from reducing the number of recurring service orders (repeat calls) are as follows:

1. Experience shows that surprising progress can be realized by merely inaugurating a system which will indicate those customers' service orders which are recurring service calls. For example, by this simple method, one company reduced the total number of recurring orders from 750 per 1000 customers to only 450.

2. Recurring service calls offer an opportunity for training of servicemen that is ideal for supplementing other methods of training, which training cannot be provided in any other way. Only by a system which provides for the serviceman going back on his repeat calls will he acquire the training necessary to enable him to eliminate recurring orders on his work.

3. Because recurring service orders represent 35% to 40% of the total service department costs (payroll costs, truck costs, etc., they offer an opportunity to reduce costs in the service department by increased efficiency.

On account of the growing interest in the subject of recurring service orders, a study was made of the practices of several widely separated companies. In those cases where a plan was introduced to reduce the number of recurring orders the starting point was in the proper kind of filing system. Completed orders were filed alphabetically or numerically according to street and number in each town. The active file covers periods from 60 days to six months. All figures in this report cover periods of six months.

In checking orders against the files to learn whether there had been previous calls at the address, several plans are followed. One is to check all C. S. O.'s (customers' service orders) in order to find all recurring cases. Another method is to select samples of nearly 1000 orders of which the recurring orders located are studied and referred to the servicemen for consideration. Under a third plan only those cases are studied where the customer in reporting his complaint volunteers that one or more previous calls had already been made.

Instead of using samples of all customers' service orders, one company preferred to pay attention to only those recurring orders when the customer volunteered the information that a serviceman had been there before. Although the totals were quite comparable, the distribution of the percentage having had one or two prior calls differed considerably:

Checking All Customers' Service Orders

1 previous call	56.2%
2 previous calls	22.4
Total 1 and 2	78.6%

Checking Only When Indicated by Customer

1 previous call	34.8%
2 previous calls	41.3
Total 1 and 2	76.1%

TABLE No. 1. RECURRING CUSTOMERS' SERVICE CALLS

Previous Call	*Percentage*					
	Company "A"		*Company "B"*		*Company "C"*	
1	56.2	89.0%	50.8	89.1%	54.6	87.4%
2	22.4		24.0		23.6	
3	10.4		14.3		9.2	
4	6.2		3.4		6.4	
5	3.0		2.3		4.0	
6	1.0		1.1		2.2	
7	0.2		1.1		....	
8 & over	0.6		3.0		....	

TABLE No. 2

These Orders Might Be Reduced Substantially	
Serviceman missed cause on previous call	25.6%
Misadjustment of serviceman on previous call	14.1
Policy in regard to checking other appliances on previous calls was not followed	11.6
Lack of instructions to customer on previous call	4.5
Valves greased instead of replaced on previous call	2.5
Previous adjustment not sold to customer	1.0
Pilots not cleaned since filter was installed in service	1.5
Total calls that can be reduced	60.8%
These Orders Are Not the Fault of the Service Department	
Legitimate order	23.6%
Customer's fault	10.6
Added or rebuilt equipment since last call	5.0
Total calls above	39.2%

TABLE No. 3. RESULTS OF A PLAN TO REDUCE RECURRING SERVICE ORDERS

	Actual Before	*Actual After*	*Goal*
Number of customers satisfied on first call	650	750	875
Number of customers not satisfied on first call	350	250	125
Total customers affected	1000	1000	1000
Number of additional calls necessary to satisfy those customers not satisfied on the first call	750	420	200
Total service calls per 1000 customers	1750	1420	1200

It seems that the method which pays special attention to complaints where the customer volunteers information that a man has already been there is favored at the present time by large companies. They feel that the sample provided is adequate to accomplish the required training and a satisfactory reduction in number of recurring orders should result. In the case of small companies, however, it is customary to investigate all of the orders.

Sixty per cent of all recurring service orders offer possibilities of being eliminated by proper training. Table No. 2 was compiled in connection with a study of this subject and gives an idea of what causes recurring service orders.

Assuming that recurring orders amount to 40% of all customers' service orders executed, it is evident that 60.8% of this portion, or nearly one-fourth of the total work of the service department, offers possibilities of elimination by proper training of men.

Only one company had figures that would show what results can be accomplished in eliminating recurring customers' service orders. The first two columns of Table No. 3 show the results per 1000 calls before and after a concerted effort to reduce recurring service calls, while the third column shows ultimate possibilities as estimated from the most recent information.

Table No. 3 is deserving of study because it shows what can apparently be accomplished by any company. It is evident that of each 1000 customers requesting service, 100 more customers are now spared the annoyance caused by recurring calls. Furthermore, there is a reduction in total calls of 330 per 1000 customers affected, or in other words it now requires only 1420 calls to do the work that formerly required 1750 calls. Expressed in another way, 19% of the total service calls have been eliminated.

The above results were accomplished by merely placing emphasis on the subject and attempting to make the servicemen "recurring-call-conscious." Before every call for a customer was dispatched to the servicemen, the files were consulted to learn whether it was a recurring order. If so, this information was passed on to the serviceman. If it proved to be a third call, special emphasis was placed on it to make it the final call.

The latest figures indicate that there is room for considerable further improvement. The third column in the above summary has been set up to show the goal, or an estimate of what this company believes can be done. When these results are reached, only 125 of every 1000 customers requesting service will be affected by recurring service calls instead of 350, and the total number of recurring calls will have been reduced from 750 to only 200 per 1000 customers affected. This will give some idea of the important effect on customer relations—it should certainly result in great benefits to this gas company.

From the standpoint of operating economies, the amount of work saved should be substantial on account of the elimination of 550 service calls per 1000 customers affected, which means a reduction of 31% in the total number of trips to customers' homes. There is probably no other opportunity which presents similar possibilities for savings in the service department.

In order to accomplish the condition shown in the third column, this company is considering a plan by which special effort would be made to give recurring orders back to the man who did the work originally. This would tend to place the responsibility on each serviceman of getting his own work done in such a way there would be as few recurring orders as possible.

At the present time too many servicemen are involved in each case. If the first man does not correct the complaint and another man is sent out, the second man, not knowing what the first one did, will probably make the same mistake as the first man. Now, if it is possible to send the same man back, he knowing what he did on the first call, will be in a better position to eliminate further complaints on this job and in the future service requests of a similar nature will be handled correctly on the first call. Only by a system which provides that servicemen go back on repeat calls will they get the training necessary to enable them to eliminate additional calls on their work. Servicemen take pride in their work and therefore prefer to handle recurring calls on their work rather than to give them to other servicemen. When this plan is followed, servicemen benefit because not only does it give them a chance for valuable training but it also saves them from the embarrassment that results from others doing their work.

Experience has proven that such a system provides one of the most effective and natural methods of training known. It automatically distributes recurring service orders among all the men who made the original calls in-

stead of relying on a few of the best qualified to make the corrections. This is turn results in a better distribution of training among all men. As each man profits by his mistakes, his number of recurring calls is reduced and he gains confidence in himself from the training he acquires in no other way.

To place such a plan in effect is not easy and a number of objections may be raised which summarized are:

1. Serviceman may not be working on the day when the recurring call is received.

2. Serviceman may have had sufficient work assigned for a complete day when the recurring call is received.

3. Serviceman may be in an entirely different part of the territory when the call is received.

4. Considerable work is necessary in checking files to establish whether a call from the customer is recurring.

As answer to the above objections, it is admitted that when a serviceman is taking his day off he will not be available for caring for his calls on recurring work. However, each man is off only one week day each week so that about 85% of the time he will still be available.

The answer to the second objection is that with proper dispatching a serviceman should not ordinarily be assigned sufficient work for a major part of the day. In a case where it does happen, the dispatcher can reassign this work to some other man. It seems important in such cases that the recurring calls should take precedent because a dissatisfied customer is involved as well as the training of the serviceman.

Concerning the third objection, it is admitted that a serviceman may happen to be an unusually long distance away from the call at the time received. The use of reason and good judgment should govern in these cases. It is contended, however, that the territory which a serviceman travels is usually such that he can be called to handle his own repeat calls. If, in a particular case a somewhat unusual amount of travelling might be necessary it should also be remembered that in this case too the call is important because a dissatisfied customer is involved as well as the training of a serviceman.

Concerning the fourth item, it seems that the number of orders checked back against the files will have to be determined by the individual companies and they in turn will determine how many they will check by weighing the cost of checking against the possible saving from reducing the number of service calls.

To companies interested in undertaking this activity, it is suggested that the first step be a survey conducted along lines mentioned hereinbefore the purpose of which would be to show present conditions. Then, after installing a plan in the service department to reduce the number of recurring service orders, a similar survey should be made periodically in order to test progress. At first these "test progress" surveys should be made every six months to a year. When the number of repeat calls is reduced to a practical minimum, there should no longer be need for further surveys except occasionally to insure that the repeat calls eliminated are going to "stay eliminated."

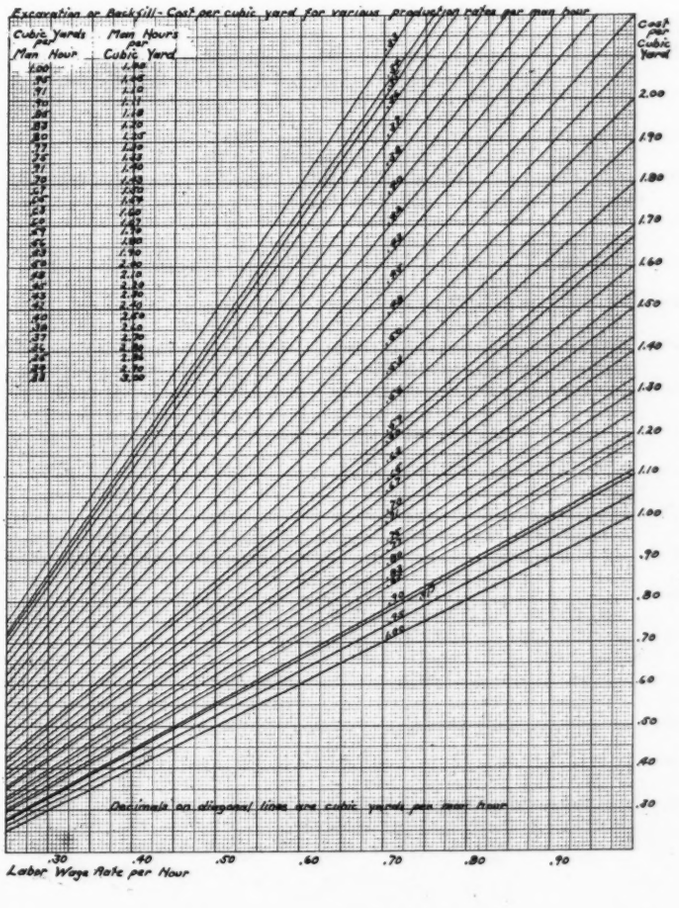
Chart Calculates Excavation Costs

By J. L. TURNER, Buffalo, New York

THE cost per cubic yard of either hand excavation or hand backfilling may be quickly determined to slide rule accuracy by the use of the accompanying chart for various production rates per man hour and at any labor wage rate per hour within its range. It is designed to take into consideration a large number of rates of production per man hour, ranging from a minimum of three man hours per cubic yard to a maximum of one man hour per one cubic yard. The lower rates of production per man-hour will be found applicable to digging under difficult conditions or in cemented earths or stiff clay, while the medium rates of production are applicable to easy digging requiring little or no pick work such as the lighter soils, or to backfilling, and the higher rates of production will apply only to the backfilling process.

It should be emphasized that this chart is intended solely as an aid to calculation and not as a substitute for engineering judgment founded on experience. Under many construction conditions, higher or lower or different production rates per man-hour than those shown on the chart may be encountered, in which case the judgment of the user should prevail. This chart covers the range of labor wage rates per hour which are liable to have been in effect in recent years.

In order to use the chart, just determine what the production rate per man-hour is or estimate what it will be. If the production rate is expressed in man-hours per cubic yard, it will be necessary to refer to the table to find the corresponding cubic yards per man-hour. Knowing the labor wage rate per hour, follow the labor wage rate shown on the chart vertically until it intersects the diagonal line representing the production rate per man-hour expressed in cubic yards per man-hour. Opposite the intersection of the lines of wages and production will be found the cost per cubic yard.



Automatic Heating is E

MINNEAPOLIS-HONEYWELL has decided to switch the appeal of its large national campaign in magazines, and national billboard posters, now devoted to a general industry theme, to this important cause. In other words, M-H advertising will inform the nation and the government of the great Fuel Conservation and Health advantages of Automatic Heating.

Home owners will be urged to have their present heating equipment checked for efficiency by their own heating merchants, and, if necessary, to install new equipment, so that they may cooperate fully with the government in its Defense Program.

To make this campaign successful, every dealer in his own territory should do his bit. To that end, Minneapolis-Honeywell has prepared, and is ready to supply free of charge, newspaper mats, direct mail pieces, display pieces, and radio continuities, emphasizing the Health and Economy of Automatic Heating. These are so designed that they will appear over your own name, featuring your own products.

We earnestly urge you to put your shoulder to the wheel in this campaign, to do everything within your power to gain the recognition for yourself and your Industry that Automatic Heating deserves as a Defense aid.

Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota

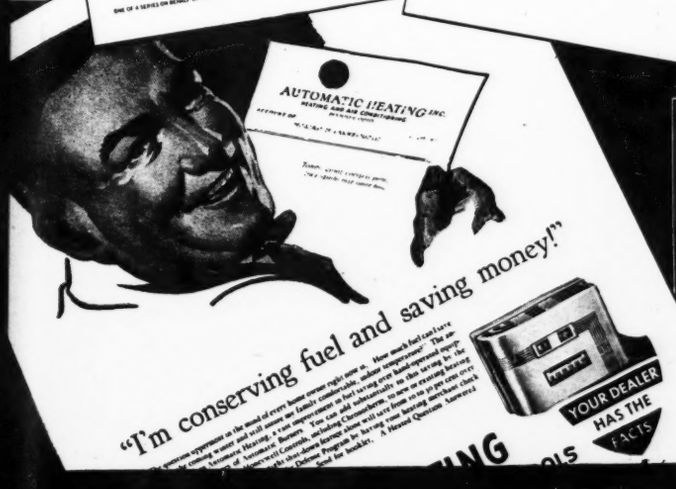
Essential

THEY *Save* FUEL
PROTECT
HEALTH

...is Essential to Defense!

Appearing in

TWO IMPORTANT Contributions to Defense
1 · CONSERVATION OF ALL TYPES OF FUEL
• The Automatic Heating Industry provides home owners with the means for cooperating fully with the spirit and purpose of our Government's Defense Program. Modern Automatic Heating, with its efficient, economy equipment, extracts all the usable heat units from the fuel it burns.
2 · PROTECTION OF HEALTH AND EFFICIENCY
• Modern Automatic Heating maintains comfort temperature, protects health, and increases efficiency. It saves fuel — Minneapolis-Honeywell Controls, including Chronotherm, save more fuel. Consult your heating merchant on ways and means to bring your heating equipment to highest operating efficiency. Ask him about Automatic Heating with Minneapolis-Honeywell Controls, including Chronotherm.
by AUTOMATIC HEATING
AND MINNEAPOLIS-HONEYWELL Controls
INCLUDING Chronotherm
THE NEW CLOCK THERMOSTAT THAT SAVES FUEL
CHRONOTHERM, WITH ITS AUTOMATIC NIGHT SHUT-DOWN, SAVES 10 TO 30 % ON YOUR FUEL BILL. SEND FOR BOOKLET, "A HEATED QUESTION ANSWERED"
YOUR DEALER HAS THE FACTS
ONE OF A SERIES ON BEHALF OF THE AUTOMATIC HEATING INDUSTRY BY MINNEAPOLIS-HONEYWELL REGULATOR CO. / 2919 FOURTH AVE. S. MINNEAPOLIS, MINN. AND 119 PETER ST. TORONTO, ONT., CANADA



MINNEAPOLIS-HONEYWELL REGULATOR CO.

SALES Slants

Gas Hospitality in Ann Arbor, Mich.

CLUBWOMEN of Ann Arbor are finding a new meeting place—one which combines all the charm of a modern clubroom with the practical facilities for cooking demonstrations—in the Hospitality Room of the Michigan Consolidated Gas Co.

Mrs. Ruth W. Bush, home service director for the company, is in charge of the Hospitality Room. The room is located on the second floor of the Gas Company building on East Huron St. The rose taupe walls and white ceiling of the room are of a modern design, trimmed with white woodwork. It is lighted with skylights and fluorescent lights. Two-thirds of the room is occupied with nine brightly colored, modernistic bridge tables and matching colored chairs accommodating 36 guests. One wall of the room represents a most up-to-date kitchen with its range and refrigerator, together with wall cupboards and demonstration tables.

The Certified Performance Roper Gas Range is used in preparing the demonstration recipes. Mrs. Bush cooks some food on the Roper's speedy surface burners, and roasts, broils and bakes other food in the Roper's assured measured-heat oven.

The silent Servel Electrolux Gas Refrigerator plays an important part in the demonstration. Mrs. Bush uses fruits, vegetables and other foodstuffs which are kept firm, fresh and full of their natural flavor in the popular gas refrigerator.

Adjacent to the Hospitality Room are two rooms, one the home service department office, and the other a service kitchen where the club refreshments are prepared and where the materials used in the demonstrations are measured, placed in labeled dishes on trays and kept in readiness for Mrs. Bush by her assistant.

Except for letters sent out to representative women's clubs last October when the Hospitality Room was first opened inviting them to make use of it for cooking demonstrations and club meetings, the gas company has not advertised the room. Instead, it has grown in popularity by pleased women informing their friends. It has become so popular that reservations must be made weeks in advance. The director says that her date book already contains reservations for next fall and even for next April.

The demand is now so great that the Hospitality Room could be used by these clubs every afternoon if Mrs. Bush were not so busy in home demonstrations. Because of the demand, reservations are accepted only from groups with at least 25 members.

The Hospitality Room is being used for three hours, two or three afternoons each week as a meeting place for such organizations as child study clubs, church ladies' societies, veterans auxiliaries, neighborhood clubs and fraternal groups.

The dessert and beverage refreshments prepared by Mrs. Bush with the aid of Mrs. S. B. Hadley, her assistant, are served at one o'clock and are followed by a demonstration in the use of modern gas appliances for the kitchen which make the task of preparing meals a delightful experience.

In addition to this program, during the months of April and May, B. P. Collins, the Servel Electrolux Gas Refrigerator representative of the gas company, has given a 10-minute talk on the history and romance of gas refrigerators.

After this part of the program, the club groups have exclusive use of the Hospitality Room for card and bridge parties, lectures, entertainment or business meetings. The recipes of food that are prepared are given as door prizes to the guests.

Hospitality Room of the Home Service Department on the second floor of the Michigan Consolidated Gas Company office, Ann Arbor district.

Ladies Home Journal Promotes Gas Industry

The June issue of *Ladies Home Journal*, which was received in nearly 4,000,000 homes, carried a story titled "How America Lives," which was the story of a 1941 June bride and the choosing of a modern gas range for her kitchen.

The Curtis Publishing Co., publishers of the *Ladies Home Journal*, have developed a dealer's help poster which employs the same illustrative photographs as were used in the magazine and ties in with the story on "How America Lives." The poster is 19 in. wide by 25 in. deep.

Headline of the poster reads, "Off to a Good Start." Captions of the illustrations read: "A 1941 Bride Chooses a Gas Range," "The Modern Gas Range Is a Joy to Work With," and "The Modern Gas Range Dresses Up Any Kitchen." A limited number of the posters are being sent to dealers for showroom and window display.

Gas Office Is Established In Carrollton, Ohio

The Natural Gas Co. of West Virginia has established an office and sales department on West Main Street in Carrollton, Ohio. C. E. Rush, maintenance supervisor of the Pittsburgh office of the company, was in charge of remodeling operations. Paul Temple is utility man in the area.

Home Building in 1940 Breaks 11-Year Record in 310 Cities

NEW home building in 310 leading American cities in 1940 reached the highest value in 11 years, according to E. E. Crabb, president of Investors Syndicate, in reporting on preliminary results of the company's annual national housing survey.

"Volume and value of new homes last year," continued Mr. Crabb, "approximated ten and a half times the 1934 totals, the low for the last 11 years.

"Available for the first time is the number of dwelling units 10 years or less old. In the 310 cities studied they approximated 915 286, or 6.35% of the 14,417,715 dwelling units in these same cities on April 1, 1940.

"A record-breaking number (1,500,000) of marriages, wide shifts in population resulting from the defense program, and rising national income, sped home building last year. High rents in some regions, decreased vacancies in many sections, further undoubling of families, and the ease of financing, coupled with the obsolescence of existing home units, likewise accelerated residential construction.

"The third lowest per person new home cost in 11 years also contributed substantially to the record-breaking home building last year. Such costs declined 3.9% from the preceding year.

"Dwelling units put up in these 310 cities last year were only 3637 less than the entire new homes built in these same cities from 1931 to 1935, inclusive," stated Mr. Crabb.

■ ■

Refrigeration Committee Is Guest of Servel, Inc.

Cooperation in the country's defense program in every way possible by maintenance of consumer business was agreed upon by the members of the American Gas Association Refrigeration Committee which met in Evansville, Ind., as guests of Servel, Inc., on June 20. B. T. Franck, chairman of the committee and vice president of the Milwaukee Gas Light Co., Milwaukee, Wis., presided.

W. C. Wolff, of the Brooklyn Union Gas Co., Brooklyn, N. Y. presented the results of a survey on replacement sales showing increased sales opportunities in the apartment house and replacement markets.

The survey, conducted among leading gas utilities in the country, showed there is a wide potential market opening up for gas refrigeration, particularly in those areas where extensive remodeling of old apartment house or new multiple housing programs are being carried on. It was also shown that among people replacing outmoded automatic refrigerators, a great number favored the gas refrigerator for their next refrigerator. The results of the survey will soon be made available to the gas industry in portfolio form.

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Gas Users Won't Suffer From Aluminum Utensil Roundup

Because of the fact that any kind of cooking utensil can be used on a gas range, homemakers who prepare food with gas will suffer no inconvenience if they turn in one or more of their used aluminum utensils to the Office of Civilian Defense for its nationwide collection which officially started July 21.

Owners of other types of ranges which call for the use of special types and shapes of aluminum ware will probably find their contribution a greater sacrifice.

If every housewife in America who cooks with gas (which is more than half of America's housewives) contributes one aluminum utensil to the national defense program, the pile of pots and pans will be increased by 17,500 000 pieces. Should this occur, it will be the greatest collection of worn aluminum cooking utensils the world has ever seen. The pile will surpass the one stacked up by housewives of England in a similar drive during the early days of the war.

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Pacific Gas & Electric Co. Issues New Motion Picture

The Pacific Gas and Electric Co. has completed a new motion picture titled: "Industries of a Fruitful Land," to add to nine other films available for free showing by clubs, churches and other organizations. It is a 16 mm. sound picture in natural color, with narration by John B. Hughes. The running time is 30 minutes.

Theme of the picture is food for the world's markets. A pictorial journey through processing plants, packing houses and factories, where grains, fruits, wines and sea foods are prepared is given. Examples are given of the use of natural gas and electricity in producing these commodities.

Robertshaw Thermostat Co. Heat Study Campaign

The Robertshaw Thermostat Co., Youngwood, Pa., has prepared an illustrated leaflet, "Oven Baking—The Hows and Whys," for distribution in quantity to students and homemakers. Two charts, "The Effect of Correct and Incorrect Oven Heat Upon Cake Baking" and "The Effect of Correct and Incorrect Oven Heat on Meat and Poultry Roasting," are features of the leaflet.

Primary theme of the campaign, which is a carry-over from a measured heat study conducted by the company this spring, is based upon the idea of selling "Better Cooking" and the buying of Thermostats is brought in as a solution to the problem of better cooking.

At the Spring Technical Conference, Pacific Coast Gas Association meeting held in Los Angeles, March 27-28, the company presented a Measured Heat Study intended principally for economics teachers. The study was built around the textbook "Measured Heat," a teacher's handbook on the subject.

Value and importance of the study is reflected by the fact that more than 7000 requests for copies have been received by the company in the last four months.

DOTTED LINE ROSCOE · By Bob Crosby

"Roscoe said to me—'Vacation or no vacation—might as well pick up a little business.'"

By 5 p. m. of Friday, May 9, 372 cakes of all kinds, sizes and shapes had been brought to Houston Natural Gas Co.'s shopping center, insuring the success of the fourth annual Mother's Day Cake Baking Contest.

A Cake-Baking Contest Aids the Needy

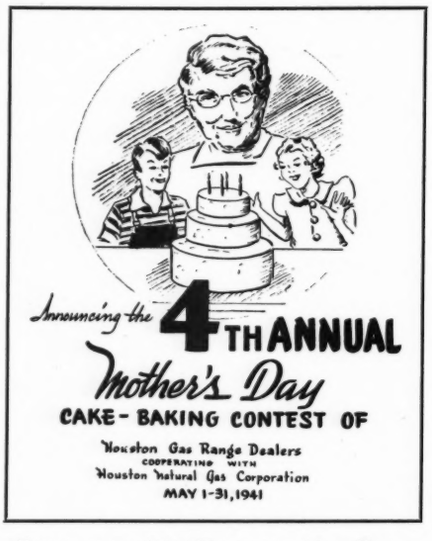
By W. H. TIPTON, JR.

Advertising Counsel, Houston Natural Gas System

GAS Range Dealers down in Houston, Texas, cooperating with the Houston Natural Gas Corp., have completed their fourth annual Mother's Day Cake-Baking Contest, an event that has become a civic undertaking in Houston. The cakes entered in this contest are sent on the Saturday preceding Mother's Day to the orphans and aged in more than 25 Houston and Harris County institutions as a Mother's Day tribute, and in that feature lies the pulling power of this unique contest. On the Friday preceding Mother's Day, 1941, 372 cakes were brought to the Houston Natural Gas Corp. Shopping Center as entries in this contest—cakes of all sizes, shapes, and kinds. Since no individual or group is barred from participating, except employees of the gas utility and the range dealers, men, women and children all feel that they have a part in this tribute to those who have no living mother.

This past May, one 10-year-old boy brought in a cake that he had mixed and baked, and asked that it be sent to Faith Home where some orphans would enjoy the cake. An 84-year-young grandmother brought in a cake for the fourth consecutive year and remarked, "I'm glad that I'm still able to be up and around and have a home of my own, and I want this cake to go to the old folks out at the Harris County Home for the Aged." These two incidents reflect the attitude of those entering cakes in this contest; time after time you hear the remark, "It goes for a good cause, and I'm not expecting to win a prize with my cake. However, it's a *good* cake, and I know some of those in an institution will enjoy it this Mother's Day."

How this plan of a Mother's Day Cake-Baking Contest was evolved and is carried out each year makes an interesting story. Particularly is this true since it costs each dealer participating as a co-sponsor absolutely nothing except the cost of *one newspaper advertisement of whatever size he chooses to run on his own line of range!* This is due to the far-sightedness of the dealers in setting up the first contest back in 1938, and to the fact that Houston Natural Gas Corp. makes gas range sales only for dealers, and displays all dealers' lines of ranges in its Shopping Center.



Front cover of booklet announcing Houston Natural Gas Co.'s Fourth Annual Cake Baking Contest.

This spring gas range activity was first proposed as an anniversary celebration of the completion of another year of 100% cooperation on the part of the gas utility with the gas range dealers. A round table luncheon discussion led to a pooling of ideas and the forming of a permanent Executive Committee and an Advertising Committee. Many ideas were advanced, ranging from a month of specials to an essay-writing contest, and when the Advertising Committee met to analyze all suggestions and choose the program to be submitted to all dealers assembled in another called meeting, the Mother's Day Cake-Baking Contest was the central theme upon which a month of gas range promotion was to be launched.

This undertaking was underwritten the first year by each dealer contributing to a pool fund on the basis of sales made for him through the gas company Shopping Center. In the participation agreement was the provision that on all future sales made through the Shopping Center, which was looked upon as plus business by the dealers, 3% of the net selling price was to be deducted by the gas company and kept in a pool fund for future promotion. In this way, sufficient funds are accumulated each year for use in the annual spring promotion.

In the 1941 promotion, adequate funds were on hand to run the advertising to support the Mother's Day Cake-Baking Contest, which carried all cooperating dealers' name, to provide the prizes, and to set up an additional merchandising offer. This advertising consisted of advertising in the Houston newspaper selected to carry the promotion, to run one advertisement in each of the other newspapers and in the Shopping News, window display placards for all dealers' windows and display floors, entry blanks for the contest, money for the prizes — two gas ranges, one of $189.50 retail value, another of $99.50 retail value (which are sold to the committee at cost by the dealer selected by the winners), and cash prizes of $15 and $10. In addition, two prizes were set up for old ranges traded in during the month: $75 for the best preserved range of five to 10 years of age; $25 for the oldest gas range, in good condition and having been in use in the home.

In return for all of this advertising paid for by the pool fund and administered by the Executive Committee, each dealer participating in the promotion agreed to run an advertisement on his own line of range in whatever

size he desired in the newspaper on the Wednesday preceding Mother's Day, this advertising to appear in a special gas range cake-baking contest section. Each dealer agreed to promote gas ranges during the month, and to devote window and floor displays to gas ranges. Each dealer also displayed one or more models of his line of range in the Houston Natural Gas Corp. Shopping Center throughout the month of May. Twenty-four gas range dealers, comprising the leading dealers of Houston, participated in the 1941 promotion.

A new element injected into the 1941 Mother's Day Cake-Baking Contest was the donating of the first four prize-winning cakes to the Greek War Relief Association, and these cakes were auctioned from the stage of one of the local theaters on Saturday evening, raising $135 for this worthy cause. The other 368 cakes entered in the contest were sent to institutions, with enough cakes on hand to furnish an ample supply to 28 institutions, and enough left over to supply the Soldiers' Service Bureau with about 30 cakes, a treat the soldiers in Houston on Mother's Day really enjoyed.

That Houston gas range dealers are sold on this annual promotion is evidenced by the instructions of the Executive Committee to the Advertising Committee preceding the 1941 contest: "This is a civic undertaking that we want to see continued and successful each year. Plan the advertising to bring in the cakes and forget about gas range sales; if we put this program over and get people interested in baking cakes and coming into our stores for entry blanks, they'll get interested in the new gas ranges and our sales will come along as a natural result of this interest." That the cakes were brought in is shown by the picture of the 372 cakes entered in this 1941 Mother's Day Cake-Baking Contest.

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Action Is Taken to Prevent Carbon Black Price Increase

According to a release issued by the American Petroleum Institute, action to prevent a general increase of 12½% in carbon black prices for the third quarter, has been taken by the Office of Price Administration and Civilian Supply through a letter inviting all major producers and distributors of carbon black to a conference at which the problems of the industry may be presented.

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Portland Gas and Coke Co. Lists Employes in Report

A novel feature of the annual report for 1940 of the Portland Gas and Coke Co., Portland, Ore., was a listing of all employes of the company, each employe's occupation, and each employe's address. More than 600 names were recorded alphabetically in the list which was placed in the center of the booklet.

Gas Eliminates Smoke Problems

OF all common fuels available, gas is most suitable for eliminating smoke problems in industrial and residential communities. This was reported by W. L. Jones of the St. Louis County Gas Co., and Dr. F. E. Vandaveer of the American Gas Association Testing Laboratories at the Smokeless Fuel Symposium of the Gas and Fuel Division of the American Chemical Society held recently in St. Louis, Mo.

Reporting an annual smoke bill of $200,000,000 due to inefficient and incomplete combustion of coal and oil, its actual cost to people in the United States amounts to approximately $2,500,000,000. This includes the extra cost of cleaning of buildings, laundering or dry cleaning apparel and house furnishings, and their shortened life. It does not include the immeasurable cost to health. "Probably the worst aspect of smoke is its effect on health," they declared. "While this relationship is difficult to evaluate, correlation of smoke and high incidence of pneumonia seem to have been clearly established. Much evidence exists that death rates from pneumonia and other respiratory ailments are greater in smoky industrial centers than in small urban communities. The effect of smoke in depriving people of sunlight is another broad aspect of the smoke problem, and one which probably has an important bearing on health."

The authors made special reference to the part gas has taken in the smoke abatement problem in the St. Louis metropolitan area. Gas is the most ideal fuel for the following reasons, they declared. First, it is the most refined fuel supplied to consumers, all deleterious elements having been previously removed. Second, gas can be burned very efficiently and completely, its products being colorless and odorless. In addition, the gas industry has pioneered in establishing the American Gas Association Testing Laboratories where gas-burning equipment is tested to insure complete combustion, as well as durable and efficient operation.

■ ■

Equitable Gas Co. Folder Describes Expansion Plans

EQUITABLE Gas Co., Pittsburgh, Pa., has mailed out to employes 15,000 copies of an eight-page folder in cartoon style explaining the company's $6,000,000 (double that of recent years) expansion program in producing natural gas for "residential, commercial and industrial customers including defense production." (See cut below.)

The folder states that 60% of the industrial gas sold by the company is being used in the manufacture of guns, shells, and a great many other types of defense equipment. The expansion program will increase the production and transmission capacity of the company 30% during the coming winter.

One phase of the program is the drilling of 250 new gas wells in the company's gas producing properties in Kentucky and West Virginia. In order to deliver this increased supply of gas to the Pittsburgh area, over 100 miles of new pipe line will be completed within the next two months. Compressing stations are being built or enlarged at eight locations on the transmission system.

Four billion cubic feet of natural gas is being stored underground at locations convenient to the Pittsburgh district from which it can be released, as needed, during periods of exceptionally high demand.

A reproduction of the pages in Equitable Gas Company's employee booklet

Uncle Sam! The Equitable Gas Company is behind you 100%. A large part of our gas is already being used in Pittsburgh defense industries.
However, we are confident that there will be plenty of gas to meet the winter requirements of our residential and commercial customers.
To provide increased gas supplies for our customers, 250 new gas wells are being drilled this year.
Over 100 miles of new pipe lines, as well as additional compressing stations are being built.
4 billion cubic feet of Natural Gas will be available in underground storage pools to meet unusual demands.
All this is being done to assure an adequate supply of gas for residential, commercial, and industrial customers, including those in defense production.
Plan NOW to enjoy the convenience of Natural Gas for the 4 big jobs.
COOKING
REFRIGERATION
WATER HEATING

How Oklahoma Natural Promotes Sales

By ALDEN COFFEY, JR.

Merchandise Sales Manager, Oklahoma Natural Gas Co., Tulsa, Okla.

THE following is a brief outline of Oklahoma Natural Gas Co.'s special promotional activities and exhibitions:

1. *The Oklahoma Natural Annual Newspaper Contest* — Every year our company sponsors a statewide contest open to all newspaper men and women in the state. This promotion is essentially one which will stimulate a greater interest for the well-being of our state in the minds of newspaper men and women of Oklahoma. Last year, $400 in cash was awarded for the best essays, written by newspaper men or women, on the subject "The Cost of Accidents is Human Misery—How Can They be Eliminated in Oklahoma?"

The contest was promoted through the Oklahoma Press Association, which enjoys a statewide membership. The campaign was advertised extensively in all of the Oklahoma Press Association bulletins and their monthly magazine carried regular one page insertions of our ad which told the story of the contest. In addition to this advertising, we mailed out several pieces of literature and various other bits of information pertaining to the contest, all pieces containing an appeal to strike a responsive mood in the minds of newspaper folks.

The results of the campaign were most gratifying, and untold volumes of good will have resulted from this activity. So much, in fact, that this sort of thing has become an annual feature of our company. Much enthusiasm and interest is being shown in this year's contest, which is entitled "Let's Sell Oklahoma Nationally — How Would YOU Do It?" This is considered a very timely subject since the majority of our newspapers have carried articles on the promotion of Oklahoma to the other 47 states.

2. *Cooking Schools*—Each year our Home Service Department sponsors and conducts a series of some 45 cooking schools all over the state of Oklahoma. These cooking schools are held in most of the smaller towns which we serve. We look upon it as a means of carrying good will and our merchandise messages to the people in these smaller towns. The attendance at these cooking schools almost in every case, is equal to the number of meters we have in the town; and in some instances, the figure has been known to go twice as high as the number of meters.

All this indicates that women do like our cooking schools and enjoy receiving the various ideas, recipes, and menus handed out at the schools. These schools, of course, are advertised in the local papers. Handbills and window posters are also used as a means of building attendance and advertising the schools. Our experience with these schools has shown that they are a very good investment.

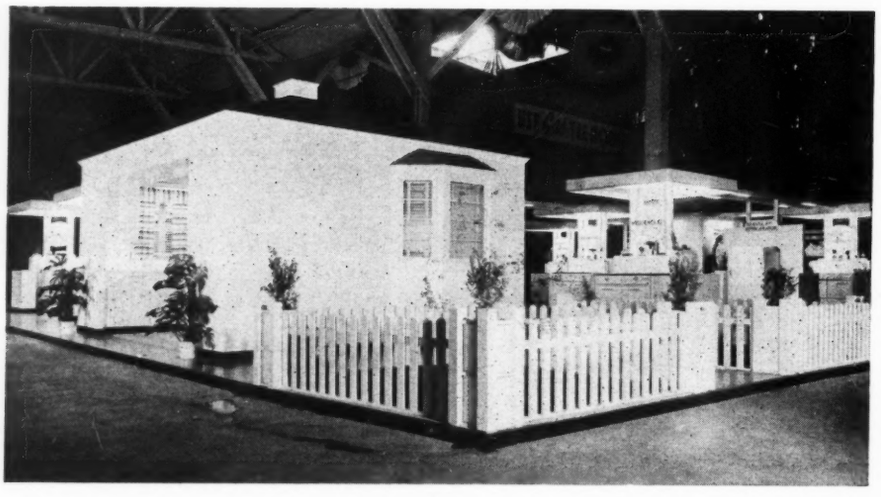
3. *Old Stove Round-Up Campaign*—Each year the Oklahoma Natural Gas Co. sponsors the annual Old Stove Round-Up beginning late in March and lasting six weeks. At the beginning of the campaign, we hold a series of dealer meetings at which time the story of the campaign is told to Oklahoma dealers and their salesmen. We build up attendance at these meetings by sending out special invitations and telegrams giving the date of the meeting, time, etc.

This year our sales meetings were quite unique, insofar as sales meetings go. The whole meeting itself was patterned after the theme of the comedy show "Hellzapoppin." There was a lot of good "meat" in the presentation, around which was woven gags, humor, three one-act plays, and side-splitting comedy.

This year we held meetings in each one of our seven major districts. A special feature of the campaign was a contest we sponsored in which Oklahoma Natural gave away seven gas ranges, one range in each of the seven major districts, to the woman who, in that district, wrote best in 25 words or less why she likes the new 1941 gas range. Her prize, of course, was her choice of a new gas range with a list price value of $100, or she could take this $100 and apply it on a more expensive range.

Our advertising for this year's Old Stove Round-Up consisted of a wide range of mediums, including largely newspaper and billboard advertising. Other forms of advertising included bill stuffers, window posters, bumper strips, window banners, window displays, etc. All of these mediums were made available to our dealers at no cost whatever, with the exception of the newspaper advertising, billboards and window displays. These window displays were released to our dealers at a nominal cost and the circulation was quite good, for it appeared in approximately half a hundred store windows. Our campaign included other promotional features, such as bonuses to salesmen, bonuses to employees for prospects turned in which resulted in sales, and many other bits of tried and tested forms of promotion.

The campaign was very successful. We set our quota at 2400; and results show that a total of 2640 ranges were sold during the six weeks of this campaign.



Los Angeles gas companies, cooperating with gas appliance manufacturers, took 4000 sq. ft. of floor space in the Southern California Home Show, which has become an annual event at the huge Pan Pacific Auditorium. The above picture shows the Natural Gas Bureau exhibit, which included a working model gas kitchen designed by the Southern California Gas Co. home planning department. In addition to gas ranges and gas water heaters, an entire section of the exhibit was devoted to various types of floor, basement and forced air gas-fired furnaces. A full sized all-gas model home, equipped with gas range, gas refrigerator, gas water heater and gas furnace, was built under the roof of the auditorium.

Home Service Supervisor Demonstrates in Honolulu

SOUTH Sea island culinary lore which she brought back from Hawaii following a series of cooking schools she conducted in Honolulu last summer was demonstrated by Miss Gladys Price, home service supervisor, Southern California Gas Co., at Bullock's in Los Angeles in connection with "Hawaiian Day," held there on June 10. Miss Price sailed June 27 on the liner Lurline, bound for a second time to Honolulu, where again she will conduct a schedule of cooking schools under the auspices of the Honolulu Gas Co. On the mornings of July 14, 15, 16 and 17 she will hold schools at the McKinley High School auditorium in Honolulu. Miss Price will be assisted by Miss Valerie Coon, home service director of the Honolulu Gas Co. On

completion of the Honolulu schedule she will fly to the Island of Hilo, where she will conduct another series of cooking schools sponsored by the Hilo Gas Co. and the *Hawaii Press.*

■ ■

No Wage-Hour Exemptions Unless Retail Sales Total 75%

In accordance with the directions of the United States Appellate Courts that exemptions from humanitarian legislation should be strictly construed, the Wage and Hour Division of the U. S. Department of Labor will not regard any establishment exempt as a retail one unless at least 75% of its sales are retail.

Where wholesale, commercial and industrial sales, non-retail in character, total more than 25%, the 40-hour week and the 30-cents-an-hour minimum wage will apply.

■ ■

Gas Rates Are Reduced in Sheboygan County, Wis.

An annual saving of $30,000 to gas customers in Sheboygan county as the result of reduced rates has been announced by the Wisconsin Public Service Corp. Rates at Sheboygan Falls and Kohler have been reduced to those of the city of Sheboygan, while rates at Plymouth, Chilton, Kiel, New Holstein, Elkhart Lake and Gravesville under the new schedule are essentially the same as those formerly in effect at Sheboygan Falls.

The speakers' table at the dinner given to honor the 35 CP Ranger Award winners in the San Francisco metropolitan bay area. Left to right: B. W. Reynolds, manager, dealer sales promotion, Pacific Gas and Electric Co.; James B. Abrams, advertising director, A. G. A. E. M.; Louis J. Breuner, president, Gas Appliance Society of California; John E. Bogan, sales promotion director, A. G. A. E. M., and principal speaker at the dinner; and R. W. Hurff, managing director, Gas Appliance Society of California.

CP Ranger Award Winners Are Honored at Dinner Party

MORE than 250 gas appliance salesmen met June 6, 1941, at a dinner in the auditorium of the San Francisco Furniture Mart to honor the 35 CP Ranger award winners in the San Francisco metropolitan bay area. John E. Bogan, sales promotion director for the domestic gas range division of the Association of Gas Appliance and Equipment Manufacturers was the principal speaker at the dinner which was sponsored by the Gas Appliance Society of California.

Besides complimenting the salesmen in the bay area for their recent sales achievements, Mr. Bogan reviewed briefly the current advertising and sales promotion efforts of the A. G. A. E. M. in behalf of CP Gas Ranges.

Louis J. Breuner, state president of the society and chairman of the meeting, introduced B. W. Reynolds, dealer sales promotion manager, Pacific Gas & Electric Co., who presented the winners to the audience.

Other guests included: James R. Abrams, advertising director, A. G. A. E. M.; Clifford Johnstone, managing director, P. C. G. A.; and Richard W. Hurff, managing director of the Gas Appliance Society of California.

■ ■

E. H. F. A. Changes Terms For Gas Appliance Financing

The Electric Home and Farm Authority which finances gas and electric appliance sales through utility company cooperation has announced that effective July 7, down payment requirements have been increased and maximum maturities have been lowered. On circulating heaters the minimum down payment is now 15% of the retail price and the maximum maturity is 18 months. On all other new gas appliances a down payment of 10% is required and the contract cannot exceed 30 months.

■ ■

Telephone Skits Entertain Brooklyn Union Co. Workers

More than 300 employes of the Brooklyn Union Gas Co., Brooklyn, N. Y., attended the public relations show presented by the American Telephone & Telegraph Co. recently.

The demonstrations, designed for business firms whose operators, receptionists, and order clerks play a vital part in direct consumer contact, were presented in the form of skits based upon typical telephone situations, each suggesting a problem and a technique to handle the problem.

Employes who attended the demonstrations were drawn mainly from the commercial and new business departments and from other departments whose members are in daily contact with customers by telephone.

■ ■

British Columbia Gas Co. Adds Customers in 1940

According to the annual report of the British Columbia Electric Railway Co., considerable progress was made by its subsidiary, the B. C. Power & Gas Co., during the past year.

In this department 827 additional customers were connected to the system in 1940 bringing the total to 53,074 at the end of the year. Notwithstanding the competition of sawdust and other cheap wood-refuse fuels, gas sales gained in 1940. Here also an increased utilization of existing facilities was combined with the increase in number of customers, resulting in a gain of 2.6 % in the volume of gas sold. In 1939 the company sold a total of 1,407,351,000 cu. ft. of gas, while in 1940 sales rose to 1,444,700,000 cu. ft.

■ ■

Oklahoma Natural Gas Co. Holds Annual Barbecue

The second annual Oklahoma Natural Gas Co. barbecue party was held recently on the International Petroleum Exposition grounds in Tulsa, Okla. More than 550 persons attended.

Many of the company employees were from Muskogee, and Okmulgee, Okla., and Iola, Kan. The out-of-town employees in the Tulsa district were brought to the picnic and returned to their homes in especially chartered busses.

After the dinner and refreshments there was dancing, games, and group singing. The committee in charge of the party comprised W. H. Bagley, F. E. Wolcott and J. P. Byrd III.

ASSOCIATION Activities

P. C. G. A. Convention Plans Formed

UNDER the guidance of R. A. Hornby, vice president of the Pacific Lighting Corp., and president of the Pacific Coast Gas Association, T. W. Snell, General Convention Committee chairman, and Clifford Johnstone, managing director of the Association, the 48th Annual Convention of P. C. G. A., to be held at Del Monte, Calif., September 10-12, is now in the advanced planning stage.

Among the general session speakers will be Major T. J. Strickler, president of the American Gas Associaton; R. A. Wehe, gas and electric engineer, California Railroad Commission; Guy Wadsworth, vice president in charge of employe relations, Southern California Gas Co.; F. H. Lerch, Jr., president, Gas Companies, Inc.; Herman Russell, president, Rochester Gas and Electric Corp.; F. M. Banks, vice president in charge of sales, Southern California Gas Co.; C. O. G. Miller, chairman of the board, Pacific Lighting Corp.; Miss Avis Lobdel, Union Pacific Railroad; and Dr. W. W. Cumberland, economist, Wellington & Co., investment bankers.

R. A. HORNBY

T. W. SNELL

The General Nominating Committee has announced that it will make the following nominations at the annual meeting:

For president: R. S. Fuller, engineer of operation, Pacific Gas and Electric Co.

For vice president: F. M. Banks, vice president, Southern California Gas Co.

For treasurer: D. G. Martin, general auditor, Pacific Gas and Electric Co.

For two-year-term directors: O. R. Doerr, general sales manager, Pacific Gas and Electric Co.; F. A. Hough, distribution engineer, Southern Counties Gas Co.; C. O. Menig, vice president, Pacific Gas Radiator Co.; and D. H. Perkins, superintendent of the gas department, San Diego Gas and Electric Co.

In making these nominations, the committee wishes to express its regret that W. G. Vincent, present vice president, has felt compelled, for personal reasons, to ask the committee not to place his name in nomination for the presidency.

The Nominating Committee's membership is as follows: W. J. Bailey, Day and Night Manufacturing Co.; John Keillor, British Columbia Electric Railway Co.; C. A. Miller, Servel, Inc.; F. S. Wade, Southern California and Southern Counties Gas Companies; and H. L. Farrar, Coast Counties Gas and Electric Co., who is chairman.

The Manufacturers' Section Nominating Committee is composed of W. R. Smith, general chairman of the Manufacturers' Section, who has appointed Frank Mosher, Dresser Mfg. Co.; A. C. Geldner, Republic Steel Corp; and D. D.Updegraff, Crane Co., to the committee for section officers. Mr. Mosher will act as chairman of the committee.

Program arrangement will be as follows:

WEDNESDAY, SEPT. 10

9:00 A. M. Registration.
2:00 P. M. First General Session.
9:00 P. M. Dancing in Bali Room.

THURSDAY, SEPT. 11

8:30 A. M. Women's Committee Breakfast.
10:00 A. M. Second General Session.
12:15 Noon Manufacturers' Business Luncheon.
2:00 P. M. Parallel Sessions:
- Sales Meeting sponsored by Sales and Manufacturers' Sections.
- Accounting Section—General Accounting.
- Technical Section—Distribution, Production.

6:00 P. M. Manufacturers' Hi-Jinks.

FRIDAY, SEPT. 12

8:30 A. M. Home Service Breakfast.
10:00 A. M. Third General Session.
12:15 Noon Special Luncheon, sponsored by Home Service Committee.
2:00 P. M. Parallel Sessions:
- Accounting Section — Customers' Accounting.
- Sales Section — Domestic Sales, Commercial and Industrial Sales.
- Technical Section—Transmission, Utilization.

7:00 P. M. Annual Banquet.

SATURDAY, SEPT. 13

Golf and Skeet Tournaments

Committees for the convention and their members are as follows:

Convention Committee: T. W. Snell, Pacific Gas & Electric Co., general chairman; Mrs. Robert A. Hornby, hostess.

Entertainment Committee: K. C. Tomlinson, Pacific Meter Works, chairman; R. L. Hayden, Coast Counties Gas & Electric Co.; Charles Grunsky, Coast Counties Gas & Electric Co.; R. W. Campbell, American Stove Co.; P. E. Beckman, Pacific Gas & Electric Co.

Banquet Committee: A. J. Noia, Pacific Gas & Electric Co., chairman; W. W. Clark; V. J. Thompson, Pacific Gas & Electric Co.

Registration Committee: P. S. George, Pacific Gas & Electric Co., chairman; J. S. C. Ross, Pacific Gas & Electric Co.; W. T. Hannum; S. A. Wright, Pacific Gas & Electric Co.

Publicity Committee: Otto Mauthe, Southern California Gas Co., chairman; A. C. Joy, Pacific Gas & Electric Co.; F. M. Raymond, San Diego Gas & Electric Co.; J. T. Van Rensselaer, Southern California Gas Co.

Balloon Juice Committee: R. O. McGougan, Pacific Gas & Electric Co.. editor; R. H. Weisbrod, Pacific Gas & Electric Co.; Otto Mauthe, Southern California Gas Co.

Properties Committee: W. J. Crabbe, chairman; A. C. Miller, Pacific Gas & Electric Co.; J. H. Gumz, Pacific Gas & Electric Co.; N. T. Mortenson.

Transportation Committee: E. C. Wood, chairman.

Golf Committee: A. F. Rice. Occidental Stove Co., chairman; H. W. Edmund, Coast Counties Gas & Electric Co.; W. L. Hoyt, Day & Night Mfg. Co.; R. W. Campbell, American Stove Co.; W. H. Mikter, H. R. Basford Co.; A. B. Allyne, California Railroad Commission; W. H. Vogan, American Gas Association Testing Laboratory; N. O. Fratt. Seattle Gas Co.; J. J. Delaney, Reliance Regulator Corp.

Skeet Committee: Chas. Kirksey, Coast Counties Gas & Electric Co., chairman; A. J. Noia, Pacific Gas & Electric Co.

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Mid-West Gas School Set For Sept. 8-10 at Ames, Iowa

THE 21st Mid-West Gas School and Conference, sponsored by the Mid-West Gas Association and held in connection with the Engineering Extension Service of Iowa State College, will be held at Ames, Iowa, September 8-10, according to an announcement made by H. K. Wrench, general chairman of the Gas School and Conference Committee.

The program will be opened by Major Alexander Forward, who will present a message from the American Gas Association. Allen D. MacLean, vice president of Pittsburgh Equitable Meter Co., will be one of the principal speakers for the Meter Section. The

Utilization Section will conduct a practical clinic on range and water heater service problems. Highlights of the Distribution Section program will be discussions on detecting unaccounted for gas, gas service and National Defense, and a demonstration of small opening leak clamping. Production Section meetings will include a round table discussion of production problems.

Special attention to the problems raised by the national emergency will be given by the conference this year, which, in former years has been held in November. The earlier date makes possible the use of the Iowa State College Men's Hall which will increase the housing facilities by 160. Persons desiring reservations may write to the Housing Committee, care of the Sheldon Munn Hotel, Ames, Iowa.

■ ■

Henry Fink Named President of Michigan Association

THE Michigan Gas Association in connection with the Michigan Electric Light Association held a meeting June 30, July 1-2, at the Grand Hotel, Macinac Island, Mich.

New officers of the Michigan Gas Association, elected at the meeting are: Henry Fink, Michigan Consolidated Gas Co., Detroit, president; M. Wilson Arthur, Consumers Power Co., Jackson, vice president, and A. G. Schroeder, re-elected secretary-treasurer.

Joint meetings of the gas and electric associations were held in the Casino on June 30. Glenn R. Chamberlain, first vice president of the Michigan Consolidated Gas Co., and chairman of the association, opened the program. Miss Sarah M. Sheridan, vice president of the Detroit Edison Co., spoke on "Looking Forward," and James E. McCarthy, Dean of the College of Commerce, University of Notre Dame, presented a talk on "The Accounting Department and Its Responsibility to Management."

On Tuesday, July 1, F. P. Cope, of the Consumers Power Co., Saginaw, and retiring president of the Michigan Gas Association, gave his address which was followed by a talk titled, "The Gas Industry in National Crisis," by Major Alexander Forward, managing director of the American Gas Association. James A. Brown, of the Commonwealth and Southern Corp., next addressed the group and was followed by Walter H. Kurdelski, Michigan Consolidated Gas Co., Grand Rapids, who spoke on "Employee Cooperation in Sales."

At noon, there was a round table luncheon for accounting men with L. J. Hamilton and A. V. McRee as co-chairmen.

The Wednesday meeting began with a "Report on Gas Fellowship at the University of Michigan," by Prof. Alfred H. White. J. E. Spindle, chairman of the Technical Committee, gave a "Review of Natural Gas Developments in Michigan," and R. E. Townsend, of the University of Michigan, gave a "Case Study of a Gas Distributing System." C. B. Farrell, of the Consumers Power Co., Jackson, followed Mr. Townsend with a talk on "Checking Soil Conditions for Pipe Line Construction," and final speaker on the program was David L. Brown, of the Consumers Power Co., Pontiac, who spoke on "Protective Covering for Small Underground Pipe."

Entertainment for the meeting included a men's golf tournament, a lawn party and tea for the ladies, and a dance on June 30, and a bridge tea and dinner dance on July 1. Members of the Entertainment Committee were: C. R. Henderson, chairman; F. H. Speese, and Henry Fink. The Ladies' Committee was composed of Mrs. C. R. Henderson, chairman; Mrs. A. D. McLay, and Mrs. Henry Fink.

Hawley Receives A.G.A. Nomination

FOLLOWING an official announcement that the 1941 meeting of the American Gas Association will be held in Atlantic City, N. J., October 20-22, the General Nominating Committee reports for 1941-1942 to be presented to the Association at the convention were released as follows:

For president: George S. Hawley, president of The Bridgeport Gas Light Co., Bridgeport, Conn.

For first vice president: A. F. Bridge, vice president and general manager, Southern Counties Gas Co., Los Angeles, Calif.

For treasurer: Ernest R. Acker, president, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.

For directors—two-year terms: Walter C. Beckjord, vice president and general manager, Columbia Gas & Electric Corp., New York; C. M. Cohn, executive vice president, Consolidated Gas, Electric Light & Power Co., Baltimore, Md.; Watson E. Derwent, vice president, Geo. D. Roper Corp., Rockford, Ill.; H. L. Dickerson, director, Elbasco Services, Inc., New York; Ralph L. Fletcher, vice president, Providence Gas Co., Providence, R. I.; R. H. Hargrove, vice president and general manager, United Gas Pipe Line Co., Shreveport, La.; D. A. Hulcy, president, Lone Star Gas Corp., Dallas, Texas; Bruno Rahn, president, Milwaukee Gas Light Co., Milwaukee, Wis.; Louis Ruthenburg, president, Servel, Inc., Evansville, Ind.; E. J. Tucker, general manager and secretary, Consumers Gas Co. of Toronto, Toronto, Ontario; and H. Carl Wolf, president, Atlanta Gas Light Co., Atlanta, Ga.

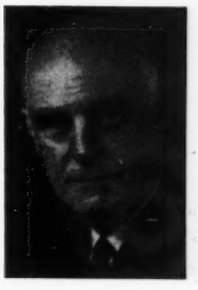
Nominees were submitted to the committee by Irving K. Peck, chairman of the Nominating Committee, who was assisted by the General Nominating Committee composed of the following members: N. B. Bertolette, Joseph Bowes, W. G. Hagan, H. L. Masser and Mabon P. Roper.

The following nominees were nominated by section nominating committees to serve as section officers for the next Association year:

Accounting Section: For chairman—Lyman L. Dyer, Lone Star Gas Co., Dallas, Texas; for vice chairman—Herman L. Gruehn, Consolidated Gas Electric Light & Power Co., Baltimore, Md.

Industrial and Commercial Gas Section: For chairman—George F. B. Owens, The Brooklyn Union Gas Co., Brooklyn, N. Y.; for vice chairman—B. H. Gardner, Columbia Engineering Corp., Columbus, Ohio.

A. F. BRIDGE



G. S. HAWLEY

Manufacturers Section: For chairman—John A. Robertshaw, Robertshaw Thermostat Co., Youngwood, Pa.

Natural Gas Section: For chairman—J. French Robinson, The East Ohio Gas Co., Cleveland, Ohio; for vice chairman—B. R. Bay, Northern Natural Gas Co., Omaha, Neb.

Publicity and advertising: For chairman—Charles A. Tattersall, Niagara Hudson Power Corp., New York.

Residential Section: For chairman—E. J. Bower, Minneapolis Gas Light Co., Minneapolis, Minn.

Technical Section: For chairman—Harold L. Gaidry, New Orleans Public Service, Inc., New Orleans, La.

Due to the National Defense program and other exigencies affecting the industry, the program will be brief and pertinent. No entertainment is provided, although there will be subscription luncheons and dinners.

Sectional programs, fewer in number, will be arranged for the convenience of those most concerned with sectional activities.

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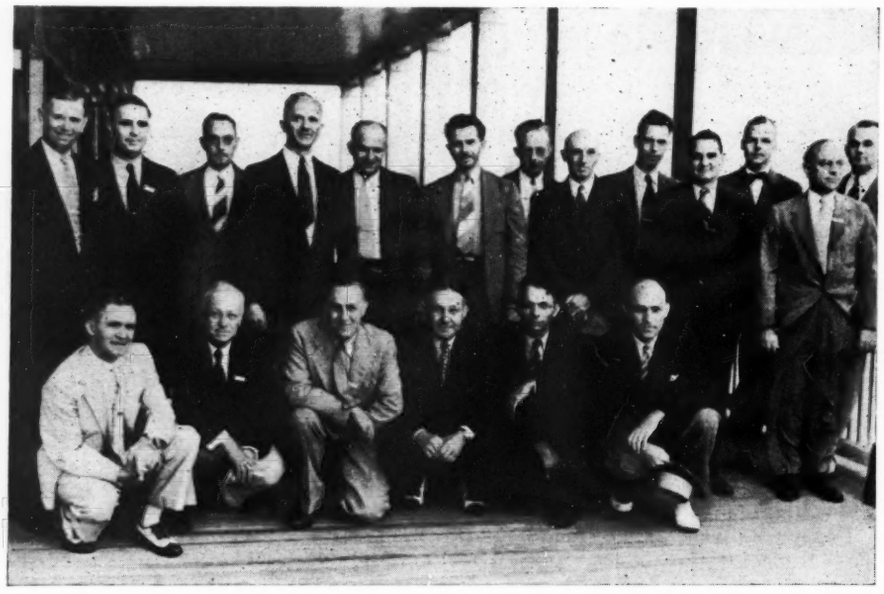
Oklahoma Utilities Ass'n Schedules Fall Meetings

MISS KATE A. NIBLACK, secretary of the Oklahoma Utilities Association, has announced that there will be one state-wide meeting and two district meetings of the association this fall.

The annual meeting of the gas division of the association will be held at the Biltmore Hotel, Oklahoma City, Okla., September 26. Executives and employees of all natural gas companies operating in the state are invited to attend this meeting, according to an announcement made by E. C. Jouillian, president of the Consolidated Gas Utilities Co. of Oklahoma City, who is chairman of the gas division of the association and in charge of preparing the program for the meeting.

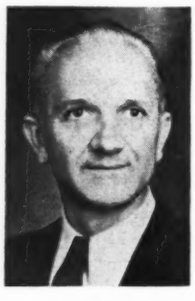
The district meetings are in the Electric Light & Power division of which J. C. Happenny, president of the Oklahoma Power and Water Co., at Sand Springs, is chairman. The eastern district conference of this division will be held at Muskogee, October 21, and the western district conference at Norman, Oklahoma, on October 24.



Among the active leaders who will direct West Virginia University's fourth annual gas measurement short course are: FRONT (left to right): G. R. Spindler, West Virginia University; W. A. Ehlers, Reynolds Gas Regulator Co.; R. W. Hitchman, United Fuel Gas Co., chairman of the school; A. D. MacLean, Pittsburgh Equitable Meter Co.; B. P. Stockwell, Public Service Commission of West Virginia; G. W. Harr, Monongahela West Penn Public Service Co. STANDING: J. E. Overbeck, Columbian Engineering Co.; W. A. Staab, West Virginia University; F. N. Wolf, Equitable Gas Co.; A. F. Kraus, Peoples Natural Gas Co.; R. O. Borden, American Meter Co.; E. M. Lockwood, Sprague Meter Co.; K. K. King, Manufacturers Light and Heat Co.; J. W. Allison, Monongahela West Penn Public Service Co.; T. K. Spalding, Owens-Libby-Owens Gas Department; Lawrence Hunter, Columbian Carbon Co.; A. M. Brooks, Chaplin-Fulton Manufacturing Co.; H. J. Wagner, Public Service Commission of West Virginia, and D. L. McElroy, director of the School of Mines, West Virginia University.

Appalachian Measurement Course Meets This Month

A. F. KRAUS, superintendent of gas measurement of the Peoples Natural Gas Co., Pittsburgh, Pa., acting chairman, has extended a cordial invitation to all in the gas industry who are interested in measurement and regulation to attend the Appalachian Gas Measurement Short Course at West Virginia University, at Morgantown, W. Va., on August 18-20.



A. F. KRAUS

According to Mr. Kraus, an outstanding list of speakers has been secured for the various sessions. General meetings will be held each morning in the assembly hall where those present will hear recognized authorities speak on various economic aspects of gas measurement and regulation. The speakers include Dr. C. E. Lawall, president of West Virginia University; C. C. Reed, Hope Natural Gas Co.; Dr. Reginald L. Wakeman, Mellon Institute of Industrial Research; Dr. R. C. Colwell, physics department, West Virginia University; Judge E. B. Pennybacker, chairman, Public Service Commission of West Virginia; William A. Ehlers, Reynolds Gas Regulator Co.; T. H. Kerr, The Ohio Fuel Gas Co.; A. D. MacLean, Pittsburgh Equitable Meter Co.; D. P. Hartson, Pittsburgh and West Virginia Gas Co.; E. H. Poe, secretary, natural gas section of the American Gas Association, and A. F. Benson, American Meter Co.

Classroom sessions of one hour and fifteen minutes each will be conducted afternoons by gas company engineers and representatives of the equipment manufacturers. Monday evening registrants at the school will be entertained with a boxing show while the annual dinner will be held Tuesday evening in the Hotel Morgan ballroom.

The third annual meeting of the school, jointly sponsored by the University of West Virginia and the Public Service Commission, was held in Morgantown last August with R. W. Hitchman, of the United Fuel Gas Co., serving as chairman of the Meter School Committee. Over 400 gas men attended.

The proceedings of this meeting were printed in a bound volume of 485 pages containing many photographs, charts, curves and diagrams. All registrants at this meeting received a copy of this book. A limited number of extra copies are available and can be obtained at $1.00 a copy by addressing G. R. Spindler, director of the school, at West Virginia University, Morgantown, W. Va.

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Gas and Oil Producers Hold Annual "Dutch Treat" Party

About 250 gas and oil producers and equipment men from Pennsylvania, West Virginia and Ohio attended the Eighth Annual "Dutch Treat." The golf party and dinner was held July 24 at the Wildwood Country Club near Pittsburgh, Pa.

The informal affair began at 11 a. m. and continued throughout the afternoon and evening. Activities included awarding of golf prizes. E. M. Borger, Peoples Natural Gas Co., Pittsburgh, Pa., served as general chairman of the entertainment committee for the man of the entertainment committee.

Committee members included: R. B. Anderson, Columbian Carbon Co., Charleston, W. Va.; C. E. Bennett, Manufacturers Light & Heat Co., Pittsburgh, Pa.; Frank Brewster, Belmont Quadrangle Drilling Co., Bradford, Pa.; J. C. Chisler, Hope Natural Gas Co., Clarksburg, W. Va.; Harry M. Brown, Chartiers Oil Co., Pittsburgh, Pa.; Jack Gaddess, North Penn Gas Co., Port Allegheny, Pa.; D. P. Hartson, Equitable Gas Co., Pittsburgh, Pa.; William H. Locke, Pennsylvania Gas Co., Warren, Pa.; J. French Robinson, East Ohio Gas Co., Cleveland, Ohio; Dan S. Keenan, Carnegie Natural Gas Co., Pittsburgh, Pa.; Christy Payne, Jr., Peoples Natural Gas Co., Pittsburgh, Pa.; W. L. McCoy, Columbus, Ohio; Rollin Ehrmann, T. W. Phillips Gas & Oil Co., Butler, Pa.; John E. Selden, South Penn Oil Co., Pittsburgh, Pa.; and J. R. Hornor, Delaware Natural Gas Co., Clarksburg, W. Va.

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Home Service Conference Held at Syracuse, N. Y.

A "REFRESHER" course in home service work and home economics training constituted the description of the program given to delegates in attendance at the Home Service Conference held in Syracuse, N. Y., July 7-8. The course was sponsored jointly by the Home Service Committee of the American Gas Association and the Household Technology Department of the College of Home Economics at Syracuse University.

E. SWEENEY

Elizabeth Sweeney, an instructor in the department and formerly chairman of the A.G.A. Home Service Committee at the time of her connection with the Empire Gas and Electric Co. in New York, was in charge of the program which, because it was given during the first two days of the summer session, included talks presented by many mmebers of the faculty of the college. There was a large attendance of home service people and representatives of food and equipment companies. Persons credited for coming the greatest distance were Mary Alice Crosson of the West Texas Gas Co., at Lubbock, Texas, and Mildred Clark, of the Oklahoma Natural Gas Co., at Tulsa.

Among the home service people participating in the program were Helen Smith of the Rochester Gas and Electric Corp., discussing "The What and Why of the Cooking Survey," presenting facts and figures as carried out in Rochester in addition to the figures showing up in the "Cooking Survey of 1939" conducted by the Home Service Committee under the supervision of Miss Smith, a member of the Committee; "Times and Temperatures" by Jane L. Roberts of the Roberts and Mander Stove Co., reporting the information secured from the industry in the preparation of the Time and Temperature Chart, another project of the Home Service Committee; "What the A. G. A. Laboratory Seal of Approval Means to Home Service," by Ruth Soule of The Brooklyn Union Gas Co.; a home call skit entitled "The Modern Gas Kitchen Goes to Work" by Helen Kirtland and Theresa Ford of the Republic Light, Heat and Power Co., Buffalo, N. Y.

Highlight of the conference was the presentation of the prize winning CP range demonstration presented by the winning contestant, Jeannette Campbell of the Minneapolis

CALENDAR

August

Appalachian Gas Measurement Short Course—Campus, University of West Virginia, Morgantown, W. Va., August 18-20.

National Association of Railroad and Utilities Commissioners—St. Paul Hotel, St. Paul, Minn., August 26-29.

September

Mid-West Gas School and Conference—Ames, Iowa, September 8-10.

Pacific Coast Gas Association — Annual Convention, Del Monte, Calif., September 10-12.

American Trade Association Executives—Hershey, Pa., September 11-13.

October

West Virginia Oil and Natural Gas Association — Annual Convention, Clarksburg, W. Va., October 2-3.

National Safety Congress and Exposition—Stevens Hotel, Chicago, Ill., October 6-10.

American Society of Mechanical Engineers—Louisville, Ky., October 12-15.

American Gas Association — 23rd Annual Convention, Atlantic City, N. J., October 20-22.

November

Mid-Southeastern Gas Association, Annual Meeting, and Institute for Gas Plant Operators—State College, Raleigh, N. C., November 13-14.

December

National Industrial Council — Waldorf-Astoria Hotel, New York, N. Y., December 1-2.

American Society of Mechanical Engineers—Annual meeting, New York, N. Y., December 1-5.

Gas Light Co. The skit was presented in the home service auditorium of the Central New York Power Corp. at Syracuse, with arrangements set up by Margaret Burlingame, home service director.

Delegates particularly enjoyed the series of group discussions where people joined groups according to the work of their own departments, such as a one-girl department with the discussion led by Ruth Bush of the Michigan Consolidated Gas Co., Ann Arbor; a district system in charge of Mildred Clark, Oklahoma Natural Gas Co., Tulsa; and the city system led by Mrs. Lyda Flanders of the Worcester Gas Light Co., Worcester, Mass. The discussion leaders reported the results of the conferences in the general sessions. A subject that appeared frequently in the discussion was the place of home service in the programs of nutrition in National Defense. Mrs. Flanders introduced Inez Somers of the Consumers' Gas Co. of Toronto, who outlined the program of home service in war time.

"Utilization of Food in the Defense Program" was the subject presented by Dorothy Shank, in charge of food utilization at the Bureau of Home Economics, Washington, D. C. Miss Shank presented the progress of food in the defense program in the headquarters of the Bureau of Home Economics, and copies of her paper are available from the American Gas Association.

At the dinner meeting held at the Drumlins Country Club at Syracuse, Helen Smith of Rochester presided as Tostmistress.

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City of Dallas Petitions Federal Power Commission

The city of Dallas, Texas, through its supervisor of public utilities, F. R. Schneider, has filed a petition with the Federal Power Commission asking for an investigation of the rates at which natural gas is sold by the Lone Star Gas Co. to the Dallas Gas Co. for resale to approximately 83,000 residential, commercial and industrial consumers in Dallas and vicinity. The petition asks for a finding that such rates are unjust, unreasonable and unduly discriminatory and for an order fixing just and reasonable charges.

The gas consumed in Dallas is transported in interstate commerce, the petition avers, and it is charged that the Lone Star Gas Co. is a natural gas company subject to the jurisdiction of the Commission.

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Priorities Division Field Organization Opens Offices

A PRIORITIES Division field organization which will have regional offices in various parts of the country is now being set up, according to E. R. Stettinius, Jr., Director of Priorities.

Ten new offices have recently been opened. Names of district managers and the location of their offices follows: William P. Homans, Boston; Philip M. McCullough, New York; Frederick W. Slack, Philadelphia; Warren G. Bailey, Chicago; Louis E. Crandall, St. Louis; V. L. Board, Denver; Walter Hall, Detroit; W. Thomas Walker, Cleveland; J. Burke Crockett, Dallas; and Charles F. Cruciger, Pittsburgh.

The Priorities Division District Managers will work in close cooperation with regional Defense Contract Service Coordinators in their areas. They will be equipped to advise businessmen on procedure to be followed in making application for preference ratings, the proper method of filling out forms and questionnaires, methods to be used in adapting their business practices to new conditions, and on any other questions arising in connection with the priorities system.

■ ■

List of Materials in Soil Corrosion Tests Is Compiled

In order that metallurgists, corrosion engineers and others concerned with the behavior of metals underground may have a list and description of all materials which have been included in various investigations made since 1922, I. A. Denison, of the Underground Corrosion Section, National Bureau of Standards, has compiled a letter circular, No. LC646, titled, "Materials in the National Bureau of Standards Soil-Corrosion Tests," for distribution.

The significant features of the various materials are discussed from the standpoint of their resistance to corrosion in soils and in other environments in which the same corrosive factors are present. The specific contribution of the various alloying elements to corrosion resistance is discussed for the different types of materials.

■ ■

Permit Sought to Lay Pipe Line Under Mississippi River

The United Gas Pipe Line Co., Shreveport, La., has applied for a War Department permit to authorize the installation and maintenance of three 10-in. diameter pipe lines, spaced 200-ft. centers, over the levee and under and across the Mississippi river, in St. Charles parish near Luling, La. Purpose of the line is to bring more natural gas into New Orleans.

The company has one line across the river at that point and the additional three lines will supplement the present facilities. Gas from the Paradise, Valentine, and Montegut fields will be piped to the New Orleans city limits, leaving the north Louisiana fields free to supply the eastern coast.

J. M. Krappe, of Purdue, Joins GAS Technical Staff

JUSTUS M. KRAPPE, of the Purdue University Engineering Experiment Station from 1936 to 1941, on July 15 became affiliated with Western Business Papers, Inc., publishers of *GAS*, as technical editor of the Handbook BUTANE-PROPANE Gases, the third edition of which is scheduled for fall publication.

J. M. KRAPPE

During his career at the Purdue Experiment Station, Prof. Krappe was responsible for the organization and direction of gas engineering laboratory research. In carrying forward his research activities at Purdue, Mr. Krappe was in continuous consultation with various committees of the Indiana Gas Association and with the manufacturers of gas appliances, accessories and automatic controls. His principal interests in this work have been concerned with the education of gas company and dealer personnel, the development and improvement of gas utilization and advances in gas technology in general.

From 1928 to 1936 Mr. Krappe was employed at American Gas Association headquarters in New York as assistant utilization engineer. While affiliated with the A. G. A., he was a member of the Committee on Gas Appliance Installation and Service Manuals, carrying out his editorial work in cooperation with gas company service departments and manufacturers of gas appliances and automatic controls.

Mr. Krappe holds a degree of Bachelor of Arts from Columbia University, New York, and received his engineering degree, B.S.M.E., from New York University.

■ ■

Mountain Fuel Supply Co. Plans 32-Mile-18-in. Line

According to an announcement made recently by O. D. Donnell, president of the Mountain Fuel Supply Co., Salt Lake City, Utah, the company plans to build a natural gas line from Bigelow Hill, Wyo., to a point 32 miles east of that location. Diameter of the pipe is to be 18 in. Estimated cost of the project is $750,000 and the date of completion is set for November 1.

The pipe will be coated and wrapped. Operating pressure will be 400 lbs. Operating capacity is stated as being 72,000 M.c.f. and maximum capacity, 84,000 M.c.f. National Tube Co. will furnish the pipe and Merco Nordstrom Co., the valves.

The company has just completed construction of an 18-mile gas pipe line from Powder Wash Field to Hiawatha Field. Diameter of this pipe is 8⅝ in. Operating pressure is 600 lbs. and maximum capacity is 10,000 M.c.f. Pipe and valve manufacturers are the same as above.

■ ■

Pittsburgh Gas Rate Boost Postponed Second Time

Postponement of gas-rate increase for Pittsburgh, Pa., consumers proposed by the Manufacturers Light and Heat Co. of that city, originally postponed for three months until July 2 by the Public Utilities Commission, after a second postponement—this time of six-months duration—now will await further action at least until Jan. 2, 1942.

INDUSTRY *Personalities*

Raymond Cross of Columbus, Ohio, was elected president of the State Fuel Supply Co. of Oklahoma City, Okla., at a meeting of the board of directors, June 20. He succeeds the late **Fletcher S. Pratt.**

At the same meeting, **R. K. Osborn,** of Oklahoma City, was advanced to general manager of the company, from his position as assistant general manager. He retains his position as secretary-treasurer of the company.

Mr. Cross has been a director of the Columbia Gas and Electric Co., at Columbus, Ohio, since 1933. Mr. Osborn has been assistant general manager of the State Fuel Supply Co. since 1939 and secretary-treasurer of the company since 1928.

• •

Charles A. Flannery, vice president and Pacific Coast manager of the Industrial Engineering Co. Wilmington, Calif., has been ordered to active duty in the United States army as a Major of Engineers with station at Fort Lewis, Wash. Mr. Flannery has been associated with the gas industry of the Pacific Coast for the last 18 years.

Dr. W. R. Hainsworth, vice president in charge of research for Servel, Inc., was elected to a three-year term as a member of the executive committee of the Industrial Research Institute at the third annual meeting of the Institute held in Pittsburgh, Pa.

The Industrial Research Institute, at Chicago, an affiliate of the National Research Council, was organized three years ago to provide an agency for the study of research organization and management in industry, rather than technical problems.

• •

W. H. Carson, former dean of the University of Oklahoma college of engineering, has taken over active management of the regional office of the Office of Production Management, Oklahoma City, Okla. Mr. Carson will serve under **Fred Jones,** regional coordinator. Before being granted a one-year leave of absence by the university, Mr. Carson was an active member of the general committee of the Southwestern Gas Measurement Short Course, held annually at the institution.

Francis H. Payne (right), for 50 years president of the American Meter Co., was tendered a surprise testimonial on June 20 at the Kahkwa Club in Erie, Pa. **Norton McKean** (left), vice president, is shown presenting Mr. Payne with the key to an antique grandfather's clock which was given to the company's president who has served the company for half a century on behalf of 46 representatives at the ceremony. Mr. McKean has been with the company since 1913.

• •

General Controls Co., of Glendale, Calif., has announced the promotion of **W. R. Nason,** formerly branch manager of the company's Houston, Texas, office, to Regional Factory Representative for the states of Kansas, Arkansas, Oklahoma, Texas and Louisiana. His headquarters will be at the company's branch office in Dallas, Texas. In his new capacity, Mr. Nason will supervise all company activities handled by the company's Houston, Texas, and Kansas City branches. **Robert C. Allen,** formerly branch manager at Dallas, has been transferred to the Houston office as branch manager, to succeed Mr. Nason.

• •

Members of the Pacific Coast Gas Association who have joined the emergency military and naval establishments recently were reported as follows: **F. H. Holden,** Southern California Gas Co., Colonel, Coast Artillery; **Wayne W. Fitkin,** Southern Counties Gas Co., Captain Chemical Warfare; **Harry C. Day,** Pacific Gas and Electric Co., Major Chemical Warfare; **M. J. Binckley,** Southern California Gas Co., Major Chemical Warfare; **John C. Mueller,** Payne Furnace & Supply Co., Captain Constructing Quartermaster's Office; **Thomas G. Wallace,** Southern California Gas Co., Lieutenant U. S. Navy; and **John M. Cox,** Southern California Gas Co., U. S. Navy.

• •

George E. Calvin, for the past 11 years paymaster and cashier for the Northern Natural Gas Co., Omaha, Neb., was promoted by the board of directors at Chicago to assistant treasurer. He will remain in Omaha.

George A. Gott, Jr., former Handley, Texas, manager for the Community Natural Gas Co., has been appointed manager of the newly organized Arlington district of the company, it has been announced by **L. B. Denning, Jr.,** vice president and operating manager of the company. **J. B. Houston,** Arlington representative of the former County Gas Co., will be manager for the Community Natural Gas Co. at Handley and will supervise gas service in Handley, Oak Lawn and Everman. **Louis B. Hulcy** is the new man-

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Only HUMPHREY "Open Front" RADIANTFIRE CIRCULATORS HAVE *ALL* THESE QUALITY FEATURES

Warm Air Outlet Grille. Heated air in generous amounts is delivered through this grille and circulates throughout the room.

Chrome Trim: Sparkling Chrome trim adds to the smart, modern appearance of the Radiantfire Circulator.

Casing: The sturdy, smooth casing of the Radiantfire Circulator is made of heavy gauge steel, beautifully finished in a durable, Opalescent Two-Tone Brown.

Hearth and Reflectors: Polished Chrome hearth and reflectors efficiently direct radiant heat into the room at the floor level.

Hinged Lower Panel: This cleverly hinged panel conceals the burner hand-wheel valve, yet permits easy access to it for turning burner on or off.

Hand-Wheel Valve: Burner is manually controlled with this valve. Thermostatic Controls available at small cost.

Down-Draft Diverter: A positive acting down-draft diverter, which does not extend beyond the vent opening of the heater, is an integral part of every vented Radiantfire Circulator.

Heat-Exchange Chambers: Rugged heat-exchange chambers, with ingeniously designed baffles, extract the maximum of heat from the hot combustion products and transfer it to the room air which circulates up and around these chambers.

Backwall-Radiant: The combination Backwall-radiant sections consist of single units of ceramic material, specially processed to provide radiant heat in large amounts.

Humphrey Economy Burner: Every Radiantfire Circulator is equipped with the famous Humphrey Economy Burner, noted for its efficiency and economy of operation.

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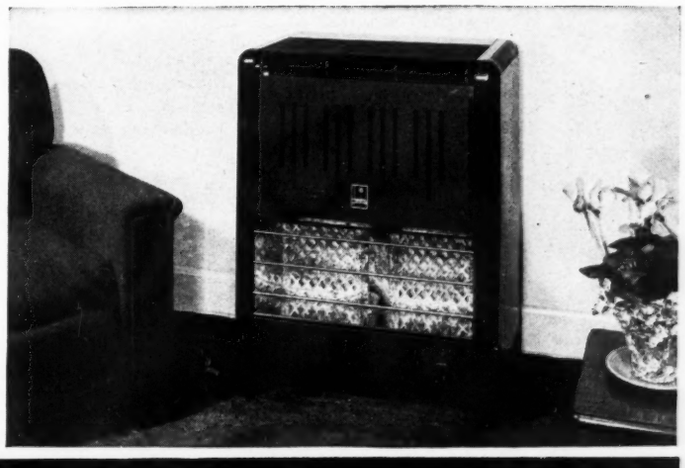
All the charm and comfort of an open fire plus the additional advantages of warm air circulated heat are supplied by Humphrey Radiantfire Circulators. Pure, radiant heat pours from the Open Front of these heaters with the speed of light and quickly warms the floor level of the room. Ingenious heat-exchange chambers extract the remaining heat and circulate it to every corner of the room.

It will pay you to investigate these outstanding Circulators at once. Write today for complete information. Give your customers the Circulator which gives them 2-WAY COMFORT.



GENERAL GAS LIGHT COMPANY
KALAMAZOO, MICHIGAN
23 Warren St., NEW YORK CITY 2nd Unit Santa Fe Bldg., DALLAS 475 Eleventh St., SAN FRANCISCO

ager of the Grand Prairie office. The appointments followed the merger of the County Gas Co. and the Dallas Gas Co., which resulted in the Community Natural Gas Co. taking over distribution properties of the district.

• •

Leslie E. Thomson, district agent of the Portland Gas and Coke Co., Newberg, Ore., is the winner of the 1940 commercial manager's medal, awarded annually by the company to the residential salesman showing the greatest progress during the year.

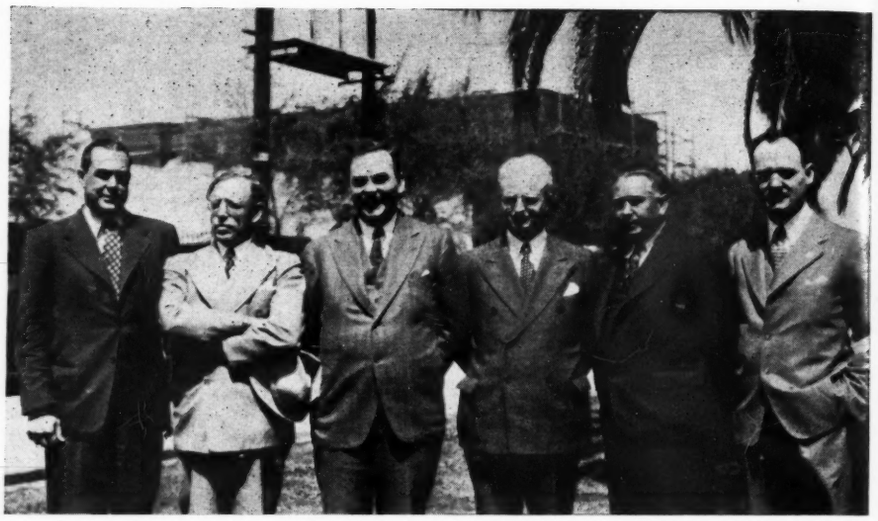
Mr. Thomson is the first winner outside of Portland since the award was established by **John J. Winn, Jr.,** commercial manager, in 1938. Winner the first year was **C. E. Diamond** and in 1939, **Ed Meyer.** The award is based on individual sales records as well as general all-around improvement and value to the company and the community.

• •

T. J. Gallagher, manager of the commercial sales department of the Peoples Gas Light and Coke Co., Chicago, has been appointed a member of the National Restaurant Association. This group will make all plans for the 1941 National Restaurant Exposition to be held October 6-10 in Chicago in connection with the annual convention of the National Restaurant Association.

• •

Frank C. Smith, president of the Houston Natural Gas Corp., Houston, Texas, has been named chairman of the board of trustees of the gas industry's newly formed Institute of Gas Technology. This is an affiliate of the Illinois Institute of Technology located in Chicago.



A gathering of executives of Robertshaw and Grayson at the Grayson factory in Lynwood, Calif. Eastern executives were present for a demonstration of Robertshaw controls to Southern California dealers and distributors of gas appliances. From left to right: K. L. Dynes, vice president and factory manager, Grayson; Hal Singleton, sales promotion manager, Grayson; J. A. Robertshaw, president of both Robertshaw and Grayson; J. E. O'Hagan, sales manager, Grayson; L. H. Decker, vice president and general manager, Grayson; and H. T. Ryan, vice president of Robertshaw.

Dr. A. L. Ward, manager of the United Gas Improvement Co. chemical laboratory, Philadelphia, Pa., was recently honored at a testimonial dinner in recognition of the degree of Doctor of Science awarded him by Syracuse University on June 2.

Dr. N. K. Chaney, director of research for the United Gas Improvement Co., presided and introduced **Dr. E. H. Smoker** of the company's research department, who read a testimonial scroll bearing the signatures of those in attendance and presented it to Dr. Ward.

• •

W. Frank Roberts, president of Standard Gas Equipment Corp., recently announced the appointment of **John W. McNair** as vice president and general manager of the company. Mr. McNair, a graduate of the Carnegie Institute of Technology, has been with the Westinghouse Electric & Manufacturing Co. for the past 12 years and for the last two years has been assistant division manager of the Baltimore plant of the company.

• •

Three employees of the Cincinnati Gas and Electric Co., Cincinnati, Ohio, have just passed the half-century mark of continuous service. These persons are: **Frank J. Schomaker,** gas production department; **Charles D. Reichel,** service department; and **William H. Reul,** gas distribution department. Messrs. Reichel, Reul, and Schomaker were presented with diamond emblems by **H. C. Blackwell,** president of the company, at the Veterans Club's seventh annual banquet, held on June 19. **Thomas E. Stanton,** of the gas distribution department, has been with the company 56 years and is the only other employe of the company who has 50 years or more to his credit.

• •

L. B. Schiesz, president of the Northern Indiana Power Co., has announced that **J. M. Pearce** will succeed **R. R. Hassfurder** as district manager for the company in Martinsville, Ind. Mr. Pearce, a graduate of Purdue University, started with the company in 1930 as rural service engineer in Kokomo, and has held that position until recently.

Mr. Hassfurder, manager of the Martinsville office for the past 14 years, has been appointed assistant division manager of the Vincennes division of the Affiliated Public Service Co. of Indiana. Mr. Hassfurder's first connection with the Northern Indiana Power Co. and its predecessors was in 1921 when he became manager of the new business department of the Merchants Heat and Light Co. of Indianapolis.

GENERAL CONTROLS *ANNOUNCES*
A MANUAL RESET SWITCH TYPE
THERMOPILOT

Provides Complete, Safe Control in Case of Pilot-Flame Failure for Domestic and Industrial Gas Applications

The A-100-5 Thermopilot operates on the proved thermocouple principle. The flame being applied to the thermocouple element maintains electrical contact when manually set, closing the circuit to the main gas valve. When the pilot gas flame fails, the Thermopilot opens the circuit, causing the gas valve to close. The A-100-5, being of the manual reset type must be manually reset after pilot flame is relighted or restored. When the button is pressed, armature and core are engaged and contacts will not be made until safe condition at pilot exists and release of button engages contacts. No adjustments need be made for installations; all parts are sealed. Contact ratings: 10 amps. at 115V.

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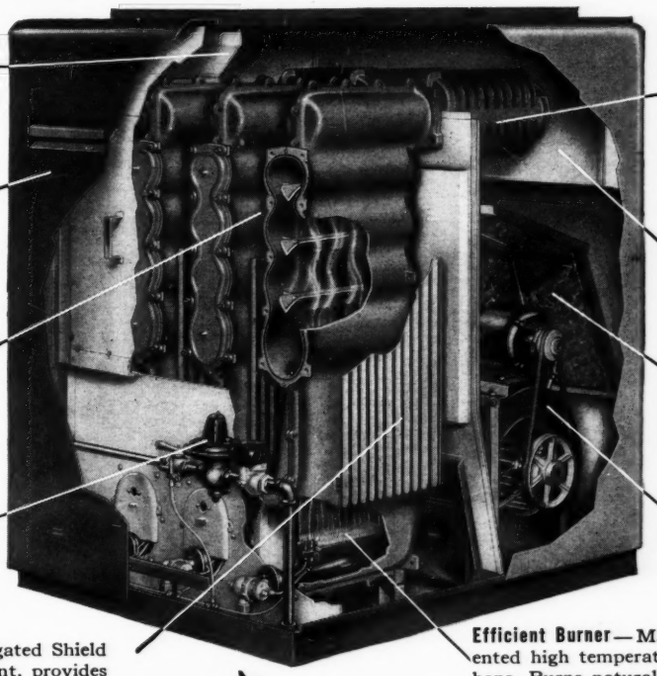

Cool Jacket—Inner lining keeps jacket cool and prevents heat loss.

Smartly Styled—Streamlined jacket is made of durable steel, finished in beautiful Two-Tone Placid Blue with suede texture.

Rugged Heating Element—Made in two sections of cast iron. The faces of both sections are precision ground and packed with asbestos wicking to form a leak-proof joint.

Highest Quality Controls—The individual instruments of the several control combinations are noted for their quality.

Reduces Heat Loss—Corrugated Shield cuts heat loss into basement, provides extra heating surface.

Pre-Heated Air—Prior to entering the Heating compartment the return air from rooms is drawn over these hot radiators—increasing efficiency, saving fuel.

Draft Hood—Fits flush with jacket and is concealed in compartment in rear.

Effective Filters—Highly efficient—easily and inexpensively replaced.

Twin Blowers—On larger sizes. Both have a large capacity and are the double inlet type.

Efficient Burner—Made of cast iron with patented high temperature alloy, corrugated ribbons. Burns natural, manufactured, mixed or bottled gas uniformly and sparingly.

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MEET the new Mohawk—youngest member of the famous SUNBEAM family—destined for quick success—built to bring you new sales, new profits! And for good reasons too. For this handsome, new Unit has a host of sales-winning features—provides completely automatic GAS-FIRED Winter Air Conditioning at *low cost* in small, medium or large homes—has nine sizes with capacities from 60,000 to 300,000 B t u input per hour.

The Mohawk has a beautiful Placid Two-Tone Blue Jacket of suede texture and a distinctive nameplate on all sizes. The fine appearance of the Mohawk is in perfect accord with the smartest basement appointments and decorations.

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Emblems and parchments marking 25 years of service with the Citizens Gas & Coke Utility, Indianapolis, Ind., were presented to 11 new members of the utility's Quarter Century Club at a dinner meeting Tuesday night in the Hotel Lincoln in Indianapolis. The presentations were made by **Thomas L. Kemp.**

Special honor was paid to **Frank J. Kalb,** general paymaster, who has completed 50 years of continuous service with the utility and its predecessors. New members of the club are: **Chester O'Banyon, Willard Champ, Charles C. Jolly, Bert Harris, L. O. Baker, Matthew McCarty, Ralph Trissal, E. R. Campbell, Armand C. Courtot, Roscoe Bredell,** and **Henry Buffington.** The dinner was sponsored by the Utility Club, the utility's executive organization and special entertainment was provided by the utility's male chorus.

• •

Ruth Pratt has been appointed technical assistant in "*McCall's*" Magazine's Appliance Test Rooms, according to an announcement by **Kathleen Robertson,** household equipment editor, and **Camille Davied,** homemaking editor of the magazine.

Miss Pratt received her B. S. degree from the State Teachers College of Memphis, Tenn., in 1938 and was awarded an M. S. degree by Iowa State College, Ames, Iowa.

• •

Frank H. Adams, for 15 years vice president and general manager of Surface Combustion Corp., has been elected president, succeeding **Henry L. Doherty,** deceased.

• •

Frank R. Phillips, president of the Philadelphia Co., Philadelphia, Pa., has announced that **Walter H. Arras** is general purchasing agent for the company, succeeding **C. W. Lepper,** retired. At the same time, **Russell C. Wenz,** formerly assistant purchasing agent, was named assistant general purchasing agent.

Mr. Arras a native of Pittsburgh, was first employed by the company as a stenographer in 1900. In 1910 he became a clerk for the Equitable Gas Co. In 1913 he was made chief clerk for the company, and five years later he became assistant general purchasing agent. Since 1919 he has held this position with the Philadelphia Co.

Mr. Wenz joined the Philadelphia Co. in 1939. Previous to that time he was associated with the Public Utility Engineering & Service Corp., Oklahoma Gas and Electric Co., San Diego Consolidated Gas & Electric Co., Western States Gas and Electric Co., and the Northern States Power Co.

• •

• **Weldon Webb,** manager of the Texas Southwestern Gas Co., Crane, Texas, has been called into the service of the United States Army and is stationed at Camp Roberts, San Miguel, Calif.

• •

According to an announcement made by **George S. Jones, Jr.,** vice president and general sales manager of Servel, Inc., Evansville Ind., the following appointments were recently made in the sales department of the company: **Grant Fink,** sales manager of the rural division with headquarters in Evansville; **A. E. Lee** (who succeeds Mr. Fink), regional sales manager with headquarters in Chicago; **James M. Clark,** assistant regional sales manager with headquarters in Washington, D. C.

Al C. Joy, manager of the publicity and advertising department of the Pacific Gas and Electric Co., San Francisco, Calif., was elected president of the Public Utilities Advertising Association of America at the Boston convention of that organization held recently. Three years ago he was elected third vice president, having previously served on the board of directors.

AL C. JOY

A native Californian, Mr. Joy became a reporter on the Fresno *Republican* soon after graduating from Stanford University. Later he worked for the Fresno *Tribune* and *Herald,* as city editor of the Oakland *Examiner,* and the Seattle *Star,* and as dramatic critic for the San Francisco *Examiner.*

He entered the field of publicity in 1916 during the campaign of Governor William D. Stephens and in 1920 went to New York as national publicity manager of Senator Hiram W. Johnson, who sought the Republican presidential nomination. Later he did publicity work for the Sun-Maid Raisin Growers Association, the San Joaquin Light & Power Corp., and the Great Western Power Co. He has been with the Pacific Gas and Electric Co. for the last 11 years.

At the Boston Convention, the Public Utilities Advertising Association awarded the Pacific Gas and Electric Co. three regional prizes for advertising. One for electrical merchandising, one for gas merchandising and the other for the most attractive annual report. These awards were made in the Association's customary nation-wide competition, in which about 125 utility companies participated and approximately 8000 pieces of advertising copy were judged by advertising experts not connected with the companies which entered the contest.

• •

John A. Quigles, chief engineer of the United Gas Pipe Line Co.'s Elm Grove, La., compressor station will be transferred to the new company station at Tallulah, La., on the closing of the Elm Grove station. Mr. Quigles has been at the Elm Grove branch of the company for the last 20 years.

• •

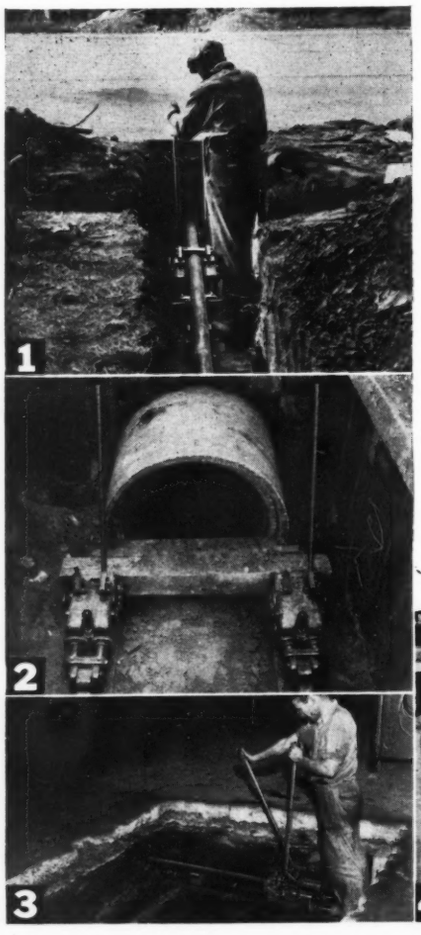
J. Grady Hicks, district manager of the United Gas Pipe Line Co., Monroe, La., was presented the Joseph A. Holmes safety award by **G. M. Kintz,** district engineer of the U.S. Bureau of Mines. This was in recognition of more than one and a quarter million man hours of work in the district without a single disabling injury.

• •

Walter Locker, secretary of the Kemrow Co., Wooster, Ohio, was elected president of The Independent Gas Producers Association of Ohio at its ninth annual meeting held in Granville, Ohio, recently. Mr. Locker has been active in the affairs of the organization and served as president in 1938 and 1939.

• •

The United Gas Corp. recently announced the following changes in personnel: **R. A. Metzke,** former district manager at New Braunfels, was transferred to the general office as assistant to the operating manager. He was succeeded by **G. L. Taylor,** formerly district manager at Childress. **W. B. Currey** became district manager at Nacogdoches, succeeding **L. B. Nicholson,** resigned. **B. D. Bruyere,** formerly of Gladewater, was trans-



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These photographs, taken right out on the job, show how easy it is for one or two men to push pipe underground with Greenlee Hydraulic Pipe Pushers. Write today for new Pusher Bulletin S-117, telling how you can lower underground pipe installation costs on every job.

1. Here is the Greenlee No. 790 pushing 3-inch pipe under U. S. Highway 51 without disturbing the pavement or traffic.

2. Two Greenlee No. 795 pushers with 75-ton pressure each, set up to push 36-inch concrete duct 70 feet under two railroad tracks.

3. Shown here is a Greenlee Pusher pushing pipe under the concrete flooring in an industrial plant without moving machines or tearing up the floor.

4. This shot shows a Greenlee No. 790 in the third sub-basement of a Chicago hotel pushing 168 feet under Michigan Boulevard. This tough push on an angle was made in 9 hours.

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ferred to Kilgore as local manager. **H. F. Blum,** formerly of Kilgore, was transferred to Vernon as local manager, and **J. O. Schuyler,** formerly of Vernon, was transferred, where he will serve as local manager for the company.

• •

Howard H. Hollon, manager of the Kansas-Nebraska Natural Gas Co. in Shelton, Gibbon, Wood River and Kenesaw, Neb., the past two years, has been promoted to the position of heat engineer for the company, and his headquarters will be at Hastings.

G. R. Kridler, formerly of Phillipsburg, Kan., who was recently transferred to Hastings, Neb., by the company, will succeed Mr. Hollon. The change became effective July 14.

• •

Julia Hunter has been named home economics director for the Galveston, Texas, district of the Lone Star Gas Co., Dallas, Texas. Miss Hunter is a graduate of Texas State College for Women with a B. S. degree in vocational home economics, and was formerly home management supervisor in the Wichita Falls area.

• •

Mark N. Morehouse was recently appointed commercial agent of the Santa Barbara County, Calif., district of Southern Counties Gas Co., succeeding **Wayne W. Fitkin,** who has been called from the officers' reserve into active army duty. Announcement was made by **George W. Smith,** district manager.

Prior to his promotion, Mr. Morehouse was a sales representative of the concern for the past seven years.

Donald R. Bayers, formerly of the engineering department of the Gas Light Co., Minneapolis, Minn., is now first lieutenant at the air base, Ft. George Wright, Spokane, Wash.

• •

M. J. Hiler, who has been employed in the research laboratories of Sharples Chemicals, Inc., Wyandotte, Mich., for the past four years has been appointed Southeastern representative of the company with headquarters in Chicago.

M. J. HILER

Mr. Hiler, a graduate of Michigan State Normal College with a bachelor of science degree, will work with **C. E. Gill** in the sale of Pentalarm for the company in the Chicago division. His new territory will include the states of Tennessee, Kentucky, Illinois, Indiana, Alabama, Georgia and Ohio.

• •

Jud Allen, manager of the Barnsdall Gas Co., Barnsdall, Okla., for the past 16 years, has been appointed manager of the Gas Service Co., at Nowata, Okla. Mr. Allen succeeds **W. C. Bledsoe,** who recently turned in his resignation to the company.

• •

R. M. Church, engineer, Oklahoma Natural Gas Co., Tulsa, Okla., has been transferred to the Ardmore, Okla., division of the company.

Lt. Ben F. Carter, formerly petroleum engineer in the Beeville district for United Gas Pipe Co., has been ordered to active duty with the coast artillery at Camp Wallace, Texas.

• •

Everett L. Davidson, assistant engineer with United Gas Pipe Line Co., has recently been transferred from the general office of the company located in Shreveport, La., to the Dallas, Texas, office.

• •

D. W. Jardine, president of the Erie County Electric Co. of Pennsylvania has been appointed chairman of the general committee for promoting the newly organized United States Organizations for National Defense in the Erie area.

• •

N. P. Chesnutt, West Texas district engineer, Texas Southwestern Gas Co., Pyote, Texas has been called into the service of the United States Army and is stationed at Fort Sam Houston, San Antonio, Texas.

• •

G. L. Cullen, manager of the sales department of the Harrisburg Gas Co., Harrisburg, Pa., has been named chairman of the Special Promotional Exhibits and Activities Committee of the Residential Section of the American Gas Association.

• •

L. O. Ripley, who served as president of the Kansas Gas & Electric Co., Wichita, Kan., until his retirement in June, 1940, recently suffered a stroke. Mr. Ripley, since his retirement from the presidency of the utilities company, had been serving as consultant to

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HAVE YOU SEEN IT?
Acclaimed as the Simplest, Most Efficient, Easiest-to-Install Mechanical Joint Ever Developed
If you have not actually seen the new Bellmaster Joint, then you can't really appreciate how it simplifies storing, handling, and installing . . . For here is a mechanical joint for cast-iron pipe that reaches you completely assembled. No separate bolts, gaskets, or rings to match up or stock. Only one piece to handle—only one piece to install. Installation is fast and easy. Any ordinary workman can get a bottle-tight joint with only a wrench for a tool—in from 2 to 5 minutes...See for yourself. Judge for yourself. Send for your FREE Bellmaster today. Use coupon below.
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Company Address
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FOR SIMPLER, FASTER, EASIER JOINING OF CAST IRON PIPE

the firm. He is now in a Wichita hospital and his condition is considered serious.

• •

At the annual meeting of the stockholders of Wisconsin Public Service Corp., held in Milwaukee, Wis., recently, **Leo T. Crowley,** president and chairman of the board of Standard Gas and Electric Co., was added to the board of directors of the public service corporation.

• •

E. E. DeBack, vice president. Stratton Pipe Line Co., at Corpus Christi, Texas, addressed the South Texas Geological Society last month on "A Discussion of Cycling and Equipment."

• •

Lt. James H. Echterhoff, chemical engineer with United Gas Pipe Line Co., in the general office, Shreveport, La., is now on active duty in the engineer corps.

• •

J. W. McCracken, welder for United Gas Corp., Wellington, Texas, has been transferred to Jackson, Miss. effective July 25.

• •

Brame Womack, scout for the Southern Natural Gas Co., Shreveport, La., has been transferred to Jackson, Miss.

Michael J. Connor, purchasing agent for the United Natural Gas Co. Oil City, Pa., retired on July 1. He had been an employe of the company since 1916.

• •

Maynard M. Stevens, supervisor of petroleum and natural gas extension service of Pennsylvania State College since 1936, is now associated with Ryder Scott Co., petroleum engineers, Bradford, Pa. He was graduated from the University of Minnesota in 1930 and received his doctor's degree in 1934.

• •

Dale Frieden assumed the duties of manager of the Waynoka, Okla., office of the Zenith Gas System. July 1, succeeding **R. R. Thomas,** who resigned to accept a position with the Santa Fe Trailways Co., Lyons, Kan. Mr. Frieden has been with the company for the past three years and during that time served in the meter department, the service department, and as cashier in Alva, Okla.

• •

Jack Seagraves of the Lone Star Gas Co., Fort Worth, Texas, has been named as an industrial engineer for the northern half of the Community Natural Gas Co., Abilene, Texas, by **E. J. Hatzenbuehler,** manager of the Community Natural industrial and commercial sales department. He will succeed **John T. Trotter,** who has been called to active duty in the United States Army, stationed at Fort Belvoir, Va.

• •

Winston C. Allen, employee in the lease and engineering division of the Ohio Fuel Gas Co., Columbus, Ohio, recently received the degree of Bachelor of Laws from Franklin University of Columbus. He carried on his studies while working for the company.

• •

M. O. Attebery, A. J. Hargrave and **H. M. Bramley,** production engineers for the Lone Star Gas Co., have been transferred from Palestine to Athens, Texas.

Obituaries

Charles L. Holman

Charles L. Holman, former president of the Laclede Gas Light Co., St. Louis, Mo., died June 20. Mr. Holman was an assistant superintendent for the Santa Fe Railroad at Topeka, Kan., until 1903, when he came to St. Louis as private secretary to the president of Laclede, and became successively secretary, vice president, general manager and, in 1914, president of the company.

He held the presidency until 1925, when he resigned to become president of the Georgian Manganese Co. He was also a former vice president of the American Gas Association, and at one time president of the National Gas Association.

• •

Elwood M. Kinsey

Elwood M. Kinsey, 70, pioneer of the oil and gas industry in Licking County, Ohio, a member of the firm of Kinsey & Shrider and for years of T. S. Kinsey & Sons, oil and gas contractors, died June 20 at his home in Newark, Ohio. Death was due to heart failure.

The Kinsey oil and gas interests have been operating in that community for 40 years and the company, organized by T. S. Kinsey, father of the deceased, with his sons, E. M. Kinsey and George E. Kinsey, drilled the first oil well in Licking County. The company was prominent in establishing the locality as one of the oil and gas centers of the state.

• •

Wilmot R. Squier

Wilmot R. Squier, 29, advertising manager of the Washington Gas Light Co., Washington, D. C., until he resigned three months ago, died June 3. A suicide verdict was issued. Leaving school at the age of 14, Mr. Squier ran away to sea, later returning to join the staff of a Washington newspaper. On being appointed advertising manager of the gas company when he was only 18 years old, he became one of the youngest executives in the industry.

• •

Charles V. McIntire

Charles Vernon McIntire, chief engineer of the Semet-Solvay Engineering Corp., New York, N. Y., died at his home in Short Hills, N. J., after a long illness. He was 55 years of age.

Mr. McIntire was a member of the American Gas Association, the Mechanical Engineering Society of America, the Summit Art Society and the Milburn Art Society.

• •

John M. Cooper

John M. Cooper, 53, San Angelo, Texas, chairman of the Cooper Gas Co., died in an Amarillo, Texas, hospital June 12. Mr. Cooper, who opened the Page gas field in Schleicher County, Texas, in 1935, was suddenly stricken ill and died soon after being admitted to the hospital.

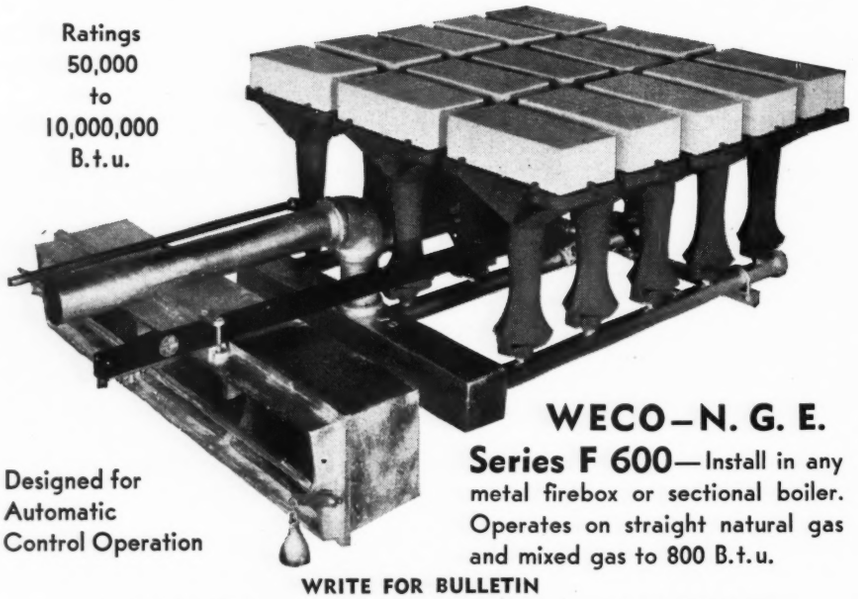
• •

Sidney H. Morgan

Sidney H. Morgan, 72, associated with the Triangle Oil & Gas Co., died recently at his home in Pittsburgh, Pa.

SOLVES CONVERSION PROBLEMS

Ratings 50,000 to 10,000,000 B.t.u.



Designed for Automatic Control Operation

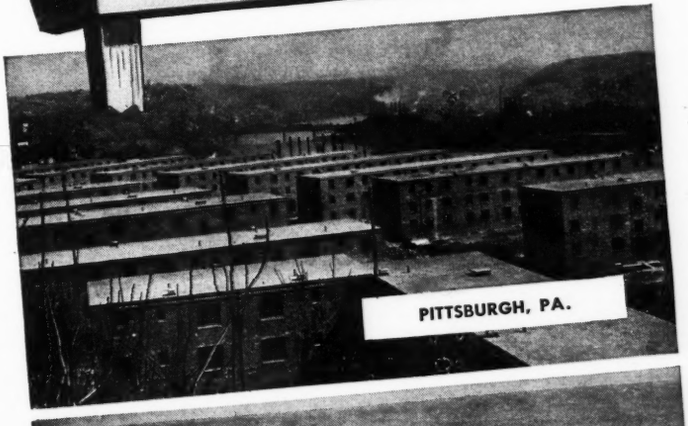
WECO—N. G. E.
Series F 600—Install in any metal firebox or sectional boiler. Operates on straight natural gas and mixed gas to 800 B.t.u.

WRITE FOR BULLETIN

THE WEBSTER ENGINEERING COMPANY
TULSA *Division of* OKLAHOMA
SURFACE COMBUSTION CORP., Toledo, Ohio
F. J. Evans Engineering Co., Birmingham, Atlanta and Houston
Catlett Engineers, Inc., Dallas Frank P. Fischer Engineering Co., New Orleans

FROM COAST TO COAST

Housing Projects Specify J-M TRANSITE FLUE PIPE



SHOWN on this page are a few of the many large housing projects where J-M Transite Flue Pipe has been used extensively for venting all types of gas-burning appliances.

It will pay you to check the advantages this modern material offers for use on every gas job you install. Made of asbestos and cement, therefore non-metallic, Transite Flue Pipe simply cannot rust . . . is highly resistant to weather and corrosion. It is relatively light in weight and is available in a complete line of sizes and fittings . . . installation is rapidly, economically accomplished even in restricted working quarters.

For full information, write for brochure TR-13A. Johns-Manville, 22 East 40th Street, New York, N. Y.

Johns-Manville TRANSITE FLUE PIPE

Preference
earned by all-'round
LEADERSHIP

The new Model A-80, illustrated above, is PACIFIC'S answer to the problem of supplying an ultra smart and completely automatic Forced-Air basement furnace for winter air-conditioning and summer ventilating. Its clean-cut modern lines and handsome two-tone blue finish make it ideal for converting the basement into an attractive recreation room.

The Blower and Heating casings are complete separate units that are quickly and easily installed without knocking down and re-assembling. Model A-80 furnaces have PACIFIC'S exclusive round Heating Element and improved Multi-tubular type Burner with one-piece cast-iron fire box liner as standard equipment.

You're Wise if You Capitalize on PACIFIC'S Strong Customer Acceptance

Gas appliance salesmen know that PACIFIC Forced-Air Systems make friends of their customers. They recognize the sales-building value of PACIFIC'S policy to give their customers *extra value* in the things that are important to them — better appearance — greater flexibility and convenience — easier installation — more dependably filtered air ventilation, summer *and* winter — faster room heating — greater over-all economy.

They know these *extra values* are the result of PACIFIC'S 28 years of specialized experience in the design and manufacture of gas heating equipment.

Write today for free catalog and complete information about PACIFIC'S sales-stimulating line and ask about the profitable PACIFIC Dealer set-up. Address Dept. G-8.

Forced-Air Units
Forced-Air Furnaces
Gravity Basement Furnaces
Floor Furnaces
Console Heaters
Wall Heaters
Gas-Steam Radiators
Water Heaters
Overhead Heater Units

Pacific
GAS RADIATOR CO.
HUNTINGTON PARK, CALIF.

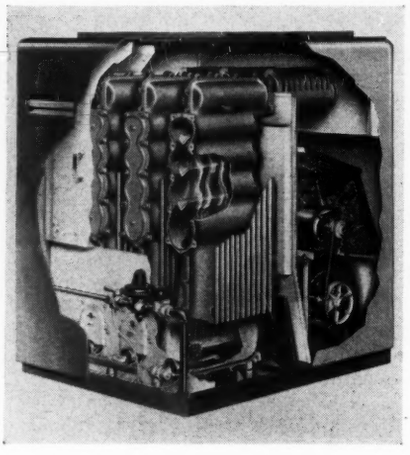
MODERN Products

Air Conditioner

American Radiator & Standard Sanitary Corp., Pittsburgh, Pa.

Model: Mohawk Gas-Fired Winter Air Conditioner.

Description: A completely automatic unit with inputs ranging from 60,000 to 300,000 B.t.u. per hr. designed to cover all sizes of installations. Heating element is built of durable cast iron, each element is made in two sections. The faces of each section are



surface ground, packed with asbestos wicking and bolted together at close intervals to form a tight, metal-to-metal joint that is permanent and leak-proof. Feature of the Mohawk is Pre-Heated Air, said to result in a saving of fuel. The return air from the living quarters is pre-heated before entering the heating compartment. This is done by means of finned radiators or cast iron collars (depending on the size of the unit) which are placed in the return air compartment. These are warmed by the hot gases on the way to the flue. As the return air from the rooms passes over these radiators or collars, it receives a first heating. The burner is made of cast iron with patented high temperature alloy, corrugated ribbons. Burns natural, manufactured, mixed or bottled gas.

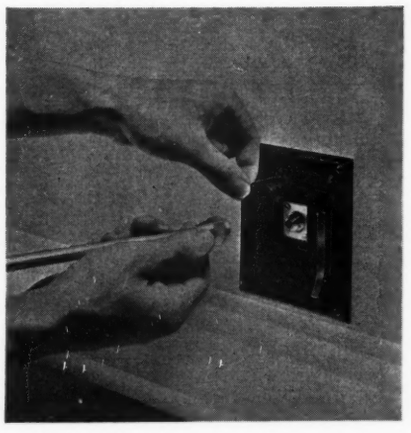
■ ■

Gas Outlet Valve

Imperial Brass Mfg. Co., Chicago, Ill.

Model: Gas-O-Let.

Description: A combination gas outlet box and safety shut-off valve, which is built right into the wall and is very similar in appearance to the familiar electrical outlet. This new type of gas connection, which is known as the Gas-o-let, is designed to take the place of the old fashioned, protruding gas valve. It makes it possible to connect up space heaters and other gas appliances in a way somewhat similar to the plugging in of electrical devices. One of the important advantages listed for this new unit is the greatly increased safety which it provides. A patented locking device in the Gas-o-let prevents the gas from being turned on unless the appliance is connected. This eliminates the danger that the gas might be turned on by accident in the summer when the appliance has been removed. Also, since the valve of the Gas-o-let can be opened only by raising the handle to a horizontal position, it is virtually impossible for it to be turned on accidentally by moving furniture against it or by knocking it with a mop or carpet sweeper, as is the case with the ordinary gas valve. The molded plastic cover plate is available in a choice of two colors—ivory or walnut—to fit unobtrusively into any room or color scheme. The Gas-o-let is designed to be a permanent part of the piping system. A substantial steel outlet box houses the forged brass valve, which is approved by the American Gas Association. A hinged cover hides the brass ⅜-in. male S.A.E. connection onto which gas heater and other appliances can be connected in the usual fashion. When rubber hose is used for connecting up appliances, a special adapter is available.



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Bell Prover

Pittsburgh Equitable Meter Co., Pittsburgh, Pa.

Model: Type 41.

Description: To insure that the meters used in measuring gas are maintained at a proper degree of accuracy, a bell type prover is used as a standard by most gas companies. The newly designed EMCO Type 41 Bell Prover is said to provide a greatly refined mechanism of this type with many innovations and attachments to facilitate the proving operation. Among the features claimed by the manufacturer are the following: The bell is accurately guided at both top and bottom by friction-free rollers. A steel cable controlled counter balance is used to reduce friction. Three point adjustable bell suspension permits accurate bell alignment. Three, dial type thermometers are provided to record (1) temperature of the atmospheric air (2) temperature of the air in the bell and (3) temperature of the oil seal of the bell. Large airways and streamline fittings pro-

WEDGEWOOD *Gas Ranges—*

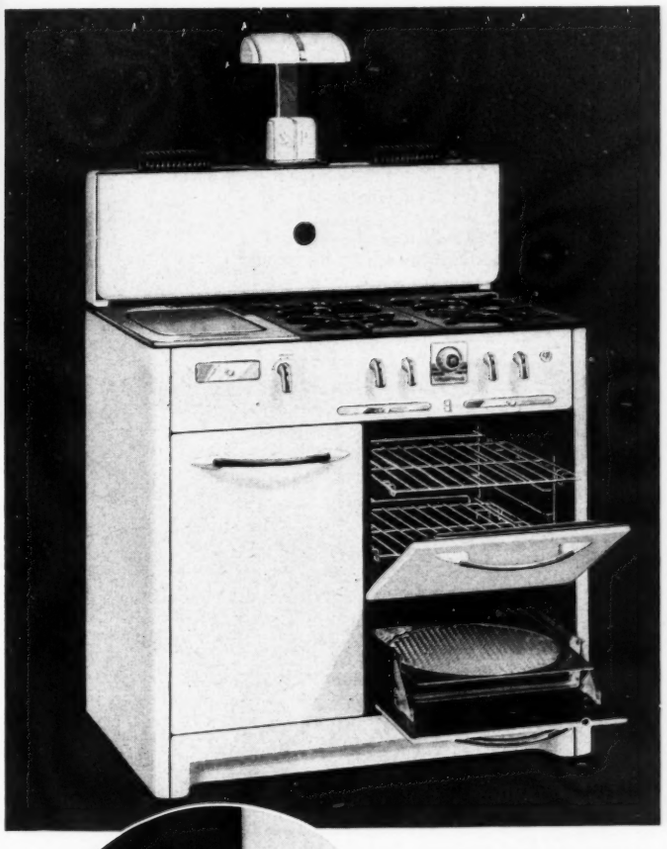
RENOWNED FOR *Quality and Performance!*

WEDGEWOOD DeLuxe Model 6385 . . .
Barbecue High Broiler, Divided Top Griddle

The genuine thrill and pleasure of owning a Wedgewood Gas Range will not diminish with the passing years. Wedgewood's quality construction and efficient performance plus modern styling and enduring beauty insures lifetime satisfaction. Important savings in fuel, food, and time result from Wedgewood's advanced cooking features.

WEDGEWOOD Gains New Friends for Gas

Gas THE MODERN FUEL

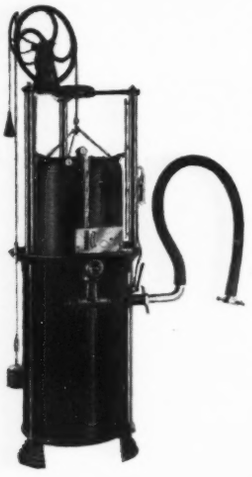


COMPACT MODEL 5185

With Top Griddle and Warmer. Ideal for Hotcakes and Frying.

WEDGEWOOD THE MODERN GAS RANGE

JAMES GRAHAM MANUFACTURING CO. • Los Angeles - San Francisco - Newark, California - Portland, Oregon



vide high capacity with a minimum change in pressure. There is a large, plainly marked straight scale with "sped-up" magnified scale at the main divisions to facilitate close reading.

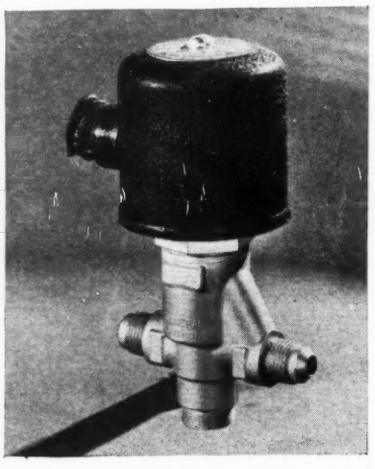
■ ■

Control Valve

General Controls Co., Glendale, Calif.

Model: Series K-20-5.

Description: A new valve designed for the control of refrigerants such as sulphur dioxide, freon and methyl chloride. Special features are its low power consumption, quiet two-wire solenoid, free from A.C. hum, simplicity of design and packless construction. The bodies are forged; coils are moisture-resistant. A non-corrosive, hardened, wear-resistant needle insures positive control. Maximum operative fluid temperature is 240° F. The tube head is brazed and will not leak even with a burned-out coil. These valves are particularly recommended for small applications, and are highly efficient for fractional tonnage installations where continued tight shut-off is necessary. Also capable of handling larger capacities up to 2.5 tons freon. They also operate on air, water, gas and light oil. Made in one port size only—5/32 in., for standard ⅜ in. I. P. S. Series K-20-5 Valves are available with sweat or flare soldered connections in any desired combination. All main valves are held open electrically, eliminating compressor burden.



UTILITY
Heating Equipment

Scientifically designed by experienced engineers—Thoroughly tested in complete laboratories—Built to precision specifications, by mass-production methods, in a completely modern new plant.

✦ ✦ ✦

Closet and basement type forced-air furnaces. Floor and dual register furnaces. Circulating heaters.

UTILITY FAN CORPORATION
4851 S. Alameda Street Los Angeles, Calif.

Catalogs

● Merco Nordstrom Valve Co., of Oakland, Calif., and Pittsburgh, Pa., has issued a new bulletin No. V-135 presenting various port and stop arrangements provided by Multiport valves. Ground plans are shown of the arrangements effected by 3-way, 2-port; 3-way, 3-port and 4-way, 4-port valves at various degrees of turn, 90°, 180° and 270°. Illustrations of the different types of Nordstrom Multiport Valves are shown, with specification tables. Multiport valves permit quick switching from line to line. One valve can do the work of two, three or four ordinary valves, according to the arrangement of flow-ways and ports and degrees of turn. Sizes range from ½ in. to 16 in., for pressures tested as high as 3000 lbs.

For high temperature services and where extremely corrosive or erosive line contents are handled, the Multiport type may be furnished with Merchrome coating. This coating presents an extremely hard surface which prevents galling and abrasion regardless of line contents or temperature.

● Worthington Pump and Machinery Corp., Harrison, N. J., has issued the Bulletin S-550 B19 which describes the Worthington Type LFC Angle Engine-Compressor, designed for use in refineries, gas or air lift pumping, gasoline plants, repressuring, refrigeration plants, sewage works, pressure maintenance and general air supply. The first machine of this type was installed in 1927. The booklet carries cross-section drawings which show the internal mechanism of the machinery. Outstanding features of the LFC compressor are: Heavy construction throughout, straight line design, total enclosure, full force-feed lubrication, conventional connecting rod mounting, silent gear driven camshaft, and Worthington feather valves. Third cover of the booklet lists the specifications of the machine. It is available in 150, 225, and 300 B. H. P. sizes and with 4, 6, and 8 cylinders.

● Gasair Corp., 155 Sansome St., San Francisco, Calif., has just issued a new bulletin on butane, propane or pentane apparatus. Mixers, vaporizers, butane-air gas plants, and gas mixing apparatus are described and pictured and their actions shown in chart form. Other charts show the layout of a gas system using gasairs. Information on the general appearance and construction, the installation, and the maintenance of gasairs is given. This bulletin may be secured by writing to the Gasair Corp. and asking for Bulletin "G."

● The Cochrane Corp., Philadelphia, Pa., has recently issued a booklet, "Feed Water Chemistry" which gives the fundamental reactions involved in water softening. Parts of the booklet deal with the "Ionic analysis" and with "equivalents per million" and other methods of interpreting water analysis which are coming into more general use. One section is devoted to formulae and molecular and equivalent weights of substances frequently appearing in the chemistry of water softening.

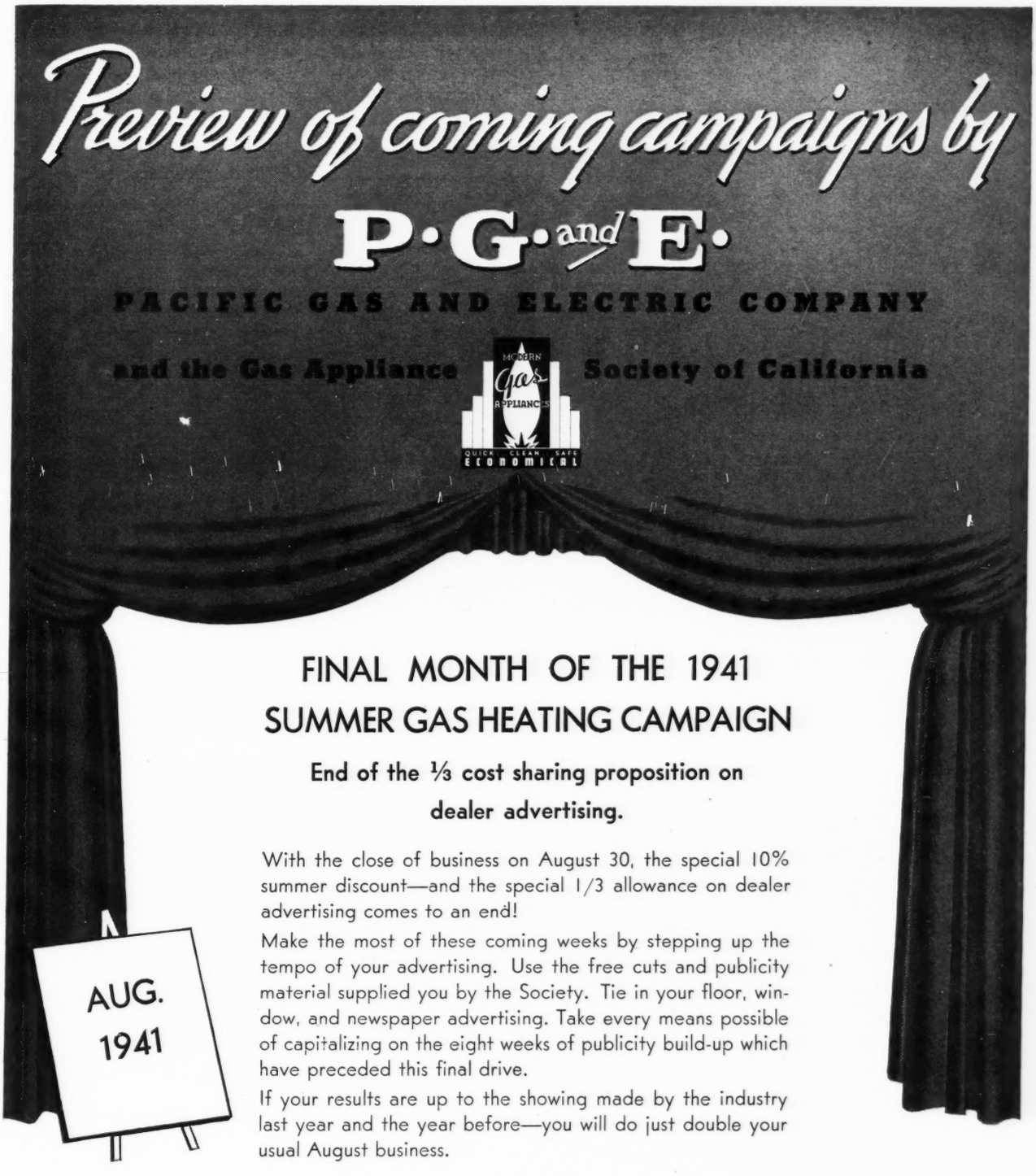
● Reliance Regulator Corp., Alhambra, Calif., recently issued a set of three pamphlets dealing with their types "H," "K," and Liquefied Petroleum Gas Regulators. These booklets contain tables regarding capacity, parts, and specifications. Operating data, instructions for ordering, and list prices are also included in three pamphlets.

Preview of coming campaigns by

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

and the Gas Appliance Society of California



FINAL MONTH OF THE 1941 SUMMER GAS HEATING CAMPAIGN

End of the ⅓ cost sharing proposition on dealer advertising.

With the close of business on August 30, the special 10% summer discount—and the special 1/3 allowance on dealer advertising comes to an end!

Make the most of these coming weeks by stepping up the tempo of your advertising. Use the free cuts and publicity material supplied you by the Society. Tie in your floor, window, and newspaper advertising. Take every means possible of capitalizing on the eight weeks of publicity build-up which have preceded this final drive.

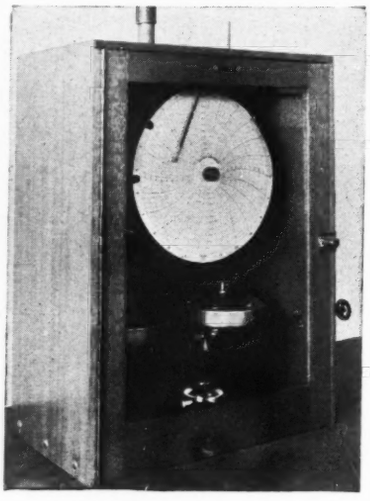
If your results are up to the showing made by the industry last year and the year before—you will do just double your usual August business.

G 208-841

DEALERS: By watching this page from month to month you can keep informed of sales promotional campaigns to be sponsored by the Pacific Gas and Electric Company and the Gas Appliance Society. Detailed information will be supplied, as usual, through the mail. If such information is not received, call our local office or write Gas Appliance Society, 1355 Market Street, San Francisco, California

ACCURATE, CONSISTENT RECORDS of

Specific Gravity of Gases REGARDLESS of TEMPERATURE VARIATIONS



ANUBIS
RECORDING GAS GRAVITOMETER

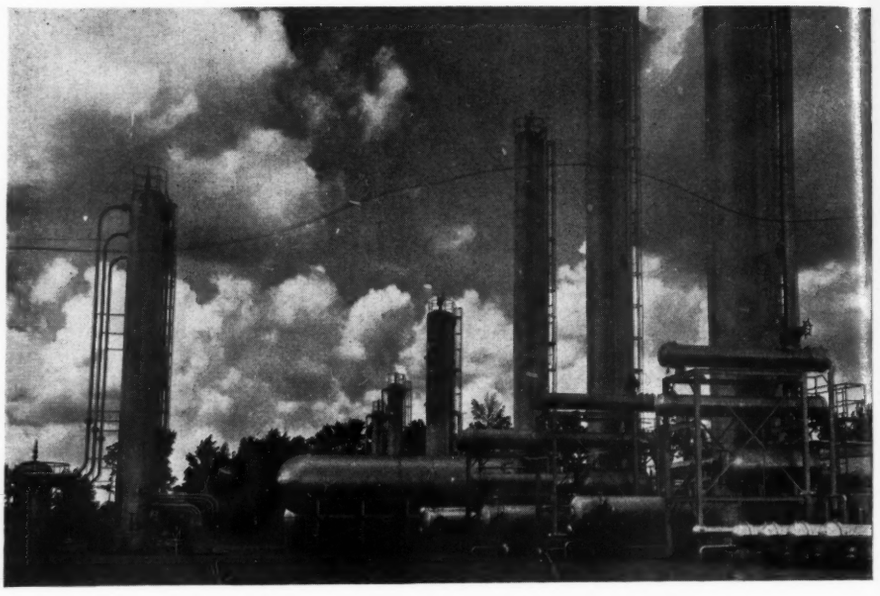
This dependable, direct-weighing instrument produces highly accurate records of the specific gravity of gases on a circular chart that can be read directly to the second decimal place, and by easy and close approximation, to the third decimal place.

Even under extreme conditions of temperature change, consistent records are always procured, for a temperature-compensating pendulum controls the recording of the specific gravity of the gas always as though the gas were at 60 degrees Fahrenheit.

Careful construction without mechanical complexities such as electric motors or pressure-regulating valves renders this instrument practically frictionless and hence extremely responsive to even minute variations in the specific gravity of the sample. Its sturdiness assures long, faithful service. Once it is calibrated and properly installed, no further attention is required except to wind the clock, change the chart, and ink the pen.

For Complete Information Send for the New Bulletin

AMERICAN
RECORDING CHART CO.
3113 EAST ELEVENTH STREET
LOS ANGELES, CALIFORNIA



General view of the Cotton Valley Recycling and Pressure Maintenance Plant in the Cotton Valley fields, near Webster Parish, La.

Cotton Valley Cycling Plant Dedicated

THE $2,250,000 Cotton Valley Recycling and Pressure Maintenance Plant in the Cotton Valley fields, Webster Parish, La., which was designed for a throughput of 150,000,000 cu. ft. of gas per day, was formally dedicated at an all-day barbecue and ceremony on July 10.

Governor Sam Houston Jones of Louisiana was the principal speaker. Other prominent state officials present were Joseph L. McHugh, director of the Department of Minerals, and George A. Wilson, attorney for the Department of Minerals. Major B. A. Hardey, chairman of the Board of Minerals, could not be present but wired his best wishes.

The project is recognized as an outstanding conservation and utilization achievement in the mid-continent field. Distillate production is expected to be about 10,000 bbls. per day, and more than 500 bbls. of iso-butane will be manufactured daily. Residue gas of about 130,000,000 cu. ft. daily from the plant will be returned to the producing formation through injection wells.

The Cotton Valley Unitization and Pressure-Maintenance Project was developed by a group of operators who banded together and formed the Cotton Valley Operators Committee, which is composed of representatives of the companies operating in the Cotton Valley field. J. R. Butler is general manager of the Cotton Valley Operators Committee, and J. J. Frommer, of the Ohio Oil Co., is chairman of the Advisory Committee.

The entire condensate zone comprising 12,590 acres in the Bodcaw sand and 10,600 acres in the "D" sand has been unitized as regards all formations below the base of the Travis Peak, under the terms of the Cotton Valley unitization and Pressure Maintenance Agreement participated in by 26 operators, independents and majors, and more than 600 land and royalty owners.

■ ■

Memphis Natural Gas Co. Withdraws Rate Schedules

The Federal Power Commission has announced that the Memphis Natural Gas Co., Memphis, Tenn.. has been permitted to withdraw its schedules providing for increased rates for natural gas sold to the Mississippi Power & Light Co. and to the Arkansas Power & Light Co. The schedules were suspended by order of the Commission.

Public hearing, previously scheduled for July 1 in Washington, was cancelled, and the Commission's order states that schedules heretofore applicable to the two purchasing companies shall remain in full force and effect until such time as they may be changed in a manner provided by the Natural Gas Act.

Formal requests for permission to withdraw the proposed new schedules were filed with the Commission on June 4 by the Memphis Natural Gas Co.

■ ■

Moon Gas Co. Asks to Sell System to Ellenboro Gas Co.

The Moon Gas Co., Ellenboro, W. Va., has filed application to the Commission for the consent and approval of the sale and transfer of its distribution system and natural gas business in that locality to M. X. Wilberding and for resale by him to the Ellenboro Gas Co. The date of hearing and proceeding was July 22.

New Plant to Use Synthetic Ammonia for Explosives

PRODUCTION of synthetic ammonia for manufacture of explosives soon will be under way in a new, modern "black-out" plant at Wilson dam, near Sheffield, Ala.

This was revealed with the announcement that Koppers Co., Bartlett Hayward division, has been awarded a contract by the Tennessee Valley Authority for the construction of one of its semi-water gas plants and auxiliary equipment.

Construction will be started as soon as possible and the plant is to be ready for operation 90 days later. The plant will produce about 20,000 000 cu. ft. of gas per day from coke, steam and air. It will provide the elements from which other equipment will create the synthetic ammonia. The amount of ammonia or the quantity of explosives which will be produced was not revealed.

The "black-out" building which will house the Koppers plant will be bu'lt by Stone and Webster and will be windowless but will be equipped with ventilating devices designed to prevent the escape of light from the interior. Dust traps of Koppers design will prevent the escape of incandescent carbon from the plant stacks. This, also, is a precaution against night-time observation from the air.

Equipment will consist of four 12-ft. mechanical generators which will be fully automatic in operation and control, making continuous operation possible. Other equipment includes combustion chambers, steam accumulators and waste heat boilers. The amount of the contract was not announced.

■ ■

Greenfield, Ind., Company Asks to Buy Properties

Approval on the sale of the Indiana Public Service Co.'s gas utility properties in and around Greenfield, Ind., to the newly formed Greenfield Gas Co., Inc., has been asked of the Public Service Commissioner. Incorporators of the new company are John H. Maxon, Lucille W. Maxon and William A. McClellan, all of whom reside in Muncie.

According to the petition that was filed, a $25,000 cash payment would be made on granting the approval. The petition further stated that the new firm has arranged to obtain additional natural gas to bolster the present diminishing supply of the city.

Contracting with the Panhandle Eastern Pipe Line Co., which carries gas from Texas fields into cities and areas northeast of Greenfield is planned. This line, which runs near Pendleton, Ind., would be tapped and a direct line laid to Greenfield. Work is expected to start on this project at once.

■ ■

Lone Star Gas Co. Plans to Build Gas Recycling Plant

Construction of a gas recycling plant in Gregg County, Texas, is planned in the near future by the Lone Star Gas Co., according to reports from the home office of the company in Dallas.

The plant, expected to cost approximately $300,000, will be constructed as a part of a transaction by which Lone Star acquired some 40 leases from Rogers and Edwin Lacy, in various parts of the Willow Springs gas area, for a cash consideration said to be between $150,000 and $200,000.

The field now has six wells producing from the 7300-ft. Pettit lime zone. Construction of a recycling plant would allow the field's operators to run the gas through the plant, strip off the distillate and return the gas not used commercially to the Pettit zone reservoir.

PRESSURE CONTROL

24 Hours a Day

Relief Valves and Cut-off Valves provided where required.

WRITE FOR BULLETINS 38 AND 41

RELIANCE

TYPES "H" AND "K" REGULATORS

. . . combine *maximum* accessibility with *minimum* maintenance trouble. Exceptionally economical in dust-troubled service lines — permit easy change of valve and blowing out of dust without removing regulator from line. Specially designed toggle action gives long, powerful thrust on valve seats and results in lower lock-up pressures.

Full range of sizes — Spring or Weight loaded.

RELIANCE Regulator Corp.

1000 MERIDIAN AVENUE • ALHAMBRA, CALIFORNIA

3005

GAS—1709 W. 8th Street, Los Angeles, California

Yes! SEND ME GAS

for 3 Years at $2.00

SUBSCRIPTION RATES: United States, Mexico, Cuba, South and Central American countries (in advance), three years $2.00; all other countries, $3.00 per year.

Name . . . . . Position . . . . .

Company . . . . .

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CURRENT *Reading*

General

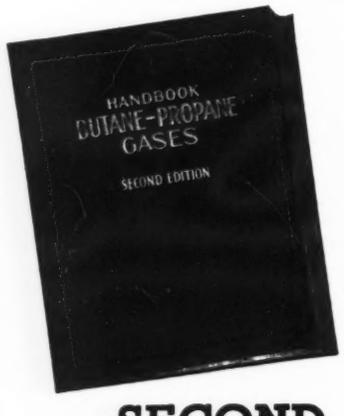
Oil and the War — By Louis E. Frechtling; paper; 12 pages; foreign policy report for June 1, 1941; published by Foreign Policy Association, Inc., 22 East 38th St., New York, N. Y.; 25c — Brief but comprehensive discussion of the role of petroleum in the war, with separate treatment of the oil problems of each of the belligerents, and of the leading neutral oil-producing countries. The author believes that Germany probably will continue to get enough oil to prosecute the war, while Japan, getting more oil than is needed for current consumption, is accumulating huge stocks. The entire report is a sober resume and analysis of the conflicting facts and opinions which have been expressed about oil and the war.

Retail and Service Establishments—Interpretative Bulletin No. 6, issued by the United States Department of Labor, Wage and Hour Division. Explains the scope and applicability of the exemption provided by section 13 (a) (2) of the Fair Labor Standards Act of 1938.

Oil and Gas Power — 1941 — *Power*, June, 1941, pp. 71-86. This eighth annual oil and gas power special section presents the case for the internal combustion engine. It forms what might be called a "report to executives" — a non-technical but nevertheless factual and accurate statement of the "hows and whys" of diesel and gas engine power, including the all-important "how much?" A concise listing of types and sizes of engines available and the annual listing of typical new installations provide the remaining instruments needed for an intelligent diagnosis.

Fire Defense—By The National Fire Protection Association. A book of 200 pages dealing with fire protection problems arising from war conditions. It draws on English experience in outlining defense against incendiary bombs, and in other sections discusses defense against fire originating from sabotage and arson; fire fighting organization for civilian defense, and the training of auxiliary firemen for municipalities and private plants. The book can be purchased from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass., for $1.50.

HANDBOOK
BUTANE-PROPANE
GASES



415 Pages

CONTENTS: Semi-Bulk Distribution: Use of Butane in Buses: Combination Propane Operated Utility Plant: Use in Internal Combustion Engines: Design and Installation of Storage: Supply from Petroleum Refineries: Engineering Data on the Lower Olefins: Domestic Appliance Testing and Utilization: Economical Comparisons with Coal, Oil, Electricty, Producer Gas, Manufactured Gas: Town Plants: Manufacture from Natural Gas: Special Uses: Volume Correction Factors: Transportation: Use with Other Gases: Analysis and Testing: Properties of Mixtures: Bottled Gas Distribution: Bibliography: Central Plant Directory: Catalog Section.

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GAS
The Natural Gas Magazine

BUTANE-PROPANE News
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Los Angeles, Calif.

Oil Boom—By Boyce House; 194 pages; cloth; half-tones; published by The Caxton Printers, Ltd., Caldwell, Idaho; $3.00. Well-written stories of Spindletop, Burkburnett, Hogtown, Mexia, Smackover, Ranger, and other fields and towns of the oil-boom days. Pleasant reading for many in the industry and helpful historical data. The author, currently columnist for Texas newspapers and formerly reporter for boom-town papers, has woven historical developments and tall tales of the oil country into an enjoyable book. The stories tell of such characters as Pattillo Higgins, J. G. Hardin, Walter Clino, S. L. Fowler, Colonel A. E. Humphries, Jack Tindall, J. K. Hughes, Wong Hing, Uncle Billy McKenzie, and others.

F. P. C. Plan Given to President Roosevelt for Adequate Power Supply for Defense Program in 1943, 1944, 1945 and 1946—Plan submitted by Chairman Leland Olds of the Federal Power Commission to President Roosevelt on July 16, 1941. Reviews F. P. C. defense work in last few years, lists funds required, and compiles in chart form a preliminary program of new generating facilities to meet anticipated loads through 1946. Location of project, system, name and location of plant, and estimated year of completion is also given in the chart. This release, No. 1637, may be secured from the Federal Power Commission.

Cumulative Pocket Supplement to Glassmire's Law of Oil and Gas Leases and Royalties—Second edition; 35 pages; paper; published by Thomas Law Book Co., 209 North 3rd St., St. Louis, Mo.; $3.00. Data for 1938, 1939, and 1940 to bring original volume up to date, with table of cases and index. Arranged by sections and pages for quick reference to late developments, then a list of cases, and finally a cross-reference index. Fits into pocket in back cover of original volume, long a standard reference work.

Chemical Warfare — By Curt Wachtel; 312 pages; fabrikoid; tables; published by The Chemical Publishing Co., 234 King St., Brooklyn, N. Y.: $4.00. Treatise explaining the potential effects of a future chemical warfare waged against civilian populations. Dr. Wachtel says that poison gases again will be used when conditions are right and after sufficient property has been destroyed and that the only satisfactory defense against gas warfare is sufficient preparation and an accumulation of poison gases which will cause the enemy to think twice before he attacks with gas. Dr. Wachtel paints a picture of the use of war gases to disturb the eyesight of soldiers, to spread prolonged diseases in the ranks, to diminish the food supply by destroying plants and animals, and to infect water supplies, plants, and animals. He indicates that airplanes already are equipped to function for effective mass poisoning of civilian populations, and pleads for education of American physicians and people in ways and means of protecting against enemies using gas.

What the New Census Means—By Stuart Chase; 32 pages; paper; charts; published by Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York, N. Y.; 10c. Problems of national maturity revealed by the 1940 census are analyzed by the author, who points out developments to be expected and forecasts effects upon the country. Data are interpreted to indicate that the country's rate of growth is decelerating and that changes will occur. Peak population, about 150,000,000, is looked for in 1970.

International Petroleum Trade—Vol. 10, No. 6, June 30. A monthly inventory of information from U. S. Government foreign service offices and other sources that may not otherwise be made available promptly. Booklet is prepared by the Petroleum Economics Division, under the direction of A. H. Redfield, Supervising Economist of the International Petroleum Section in cooperation with the Foreign Minerals Division. Gives international petroleum statistics. foreign trade notes, and latest developments of the industry.

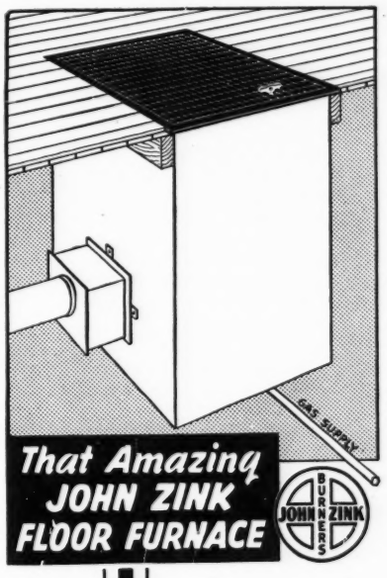
The New Oil Fields of Southern Illinois—By Don L. Carroll. Published by the Illinois Chamber of Commerce with the cooperation of the Illinois State Geographical Survey. A history of the recent development of the oil industry in Southern Illinois. Estimated oil and gas possibilities of the state. Maps, charts, and graphs, illustrate and explain details of the developments.

Technical

Gas Flow Computations—By P. McDonald Biddison, consulting engineer, Dallas, Texas; 48 pages; a paper presented at the 36th Annual Convention, Natural Gas Section, American Gas Association, Dallas, Texas, May 5-7, 1941. Purpose of paper is to develop the methods of solution of gas flow problems in a manner enabling the use in current practice information on friction factor that has become available since the publication of Monograph 6 of the U. S. Bureau of Mines, and in addition to bring to the attention of the natural gas industry the desirability of the accumulation of additional data acquired under conditions where a reasonable degree of accuracy is obtainable. Many figures, tables, and charts are presented in the paper.

Compressor Losses Caused by Orifice Meters—J. G. Burnham and V. E. Middlebrook. *Refiner*, May, 1941, pp. 77-79. The effect of an orifice inserted in a line carrying gas will be to produce a final downstream pressure which is lower than the upstream pressure. In the case of an orifice meter, which is usually installed relatively close to the compressor suction header, the final downstream pressure will be essentially the intake pressure of the machines. If there were no orifice in the line the upstream or higher pressure, not the final downstream pressure, would be the intake to the machines. If the orifice plate is eliminated one of the following conditions will prevail: (1) The machine will handle more gas due to an increase in volumetric efficiency; or (2) less horsepower, either total or per million, will be required to boost the same volume to a specified discharge pressure. For the case given, of a 12-in. line carrying 5000 M c.f. of gas available at 8-in. vacuum, the percent of volumetric capacity lost will range from 1% at 5 in. differential to 15% at 50 in. The percent increase in Hp/M c.f. required to boost to 40 lbs. varies from about 1% at 5 in. to 11% at 50 in. If the orifice is removed from the master meter the total incoming gas volume can be determined by two meters; one installed on absorber residue, the other on the stabilizer tops. A factor calculated from a fractional analysis of the finished product may be used to convert the gallons of stabilized gasoline to equivalent cubic feet of gas. The total of the two metered volumes plus the factored volume will equal the volume of gas entering the plant.

A Rational Approach to Cathodic Protection Problems—G. N. Scott. *Petroleum Engineer*, May, 1941, pp. 27-30. Part I. Attention is called to the need for more detailed tests than are normally made—Criteria of protection should be viewed with caution.



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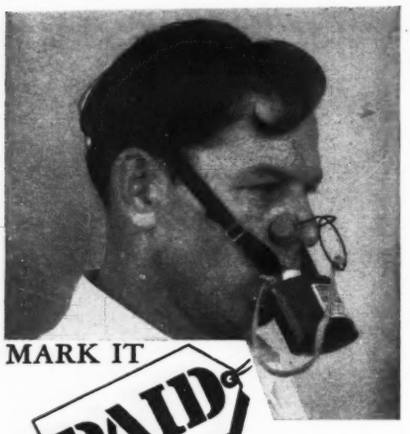

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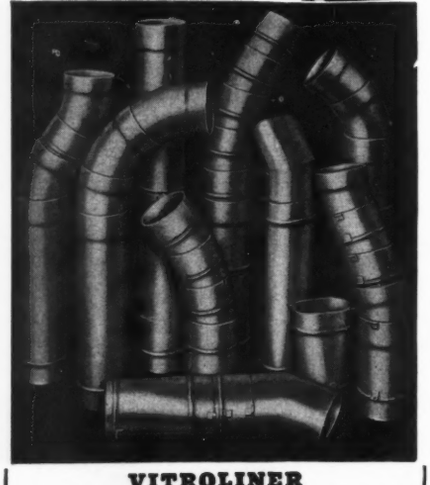

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Characteristics of Exhaust-Gas Analyzers—J. L. Dilworth. *S. A. E. Journal*, June, 1941, pp. 235-239. Conflicting views of experienced maintenance men on the accuracy of exhaust-gas analyzers in determining the air-fuel ratio stimulated a critical study and numerous actual tests of various exhaust-gas analyzers with a view toward securing some dependable information on the actual performance of these instruments. The tests were all conducted at Virginia Polytechnic Institute on a single-cylinder, variable-compression test engine in order to eliminate, or permit the control of, as many variables as possible. From the results of these tests it is concluded that exhaust-gas analyzers are not precision instruments, being likely to err as much as one-half of one air-fuel ratio, even under favorable conditions; and that all exhaust-gas analyzers are calibrated for regular commercial gasolines, requiring special calibration for any fuel with a different chemical composition.

Acid Treatment Aids Deep Lime and Sand Wells' Production—P. E. Fitzgerald. *Oil and Gas Journal*, June 5, 1941, pp. 69, etc. The successful use of chemicals to improve wells producing oil and gas from reservoirs composed of limestones, dolomitic formations and certain types of sands attracted the attention of deep well operators on the Gulf Coast and in California several years ago, but was not adopted by them until the advantages of such treatments were fully apparent as a result of recent laboratory research and field experimentation. This program of research resulted in the introduction of chemical solutions and treating techniques that have proved beneficial in more than 75% of the wells treated on the Gulf Coast to date.

Increased Recovery by Pressure Maintenance—J. H. Abernathy. *Oil and Gas Journal*, June 26, 1941, pp. 53, 56. Laboratory data and field operations indicate that the average recovery from a gas-drive reservoir by conventional production methods is in the order of 25% of oil in place (corrected for shrinkage). The balance of the oil is left in the reservoir largely because at about 25% void space the relative permeability of the formation to gas becomes high.

Use of Stoichiometry in Gas Cycling Operations—R. L. Huntington. *Oil Weekly*, June 9, 1941, pp. 13-15. In this article a method is shown for allocating the flowof dry gas from an input well to various producing wells in a cycling operation. This is done by stoichiometry or the use of a material balance in which a small percentage of air serves as a tracer. In addition to this information, these calculations give the engineer an idea of the denuding action which the dry gas has, both on the crude oil held in the reservoir and that which is produced at the surface.

Engineers Express Views on Drilling and Production Trends—*World Petroleum*, June, 1941, pp. 40-55. These articles present the views of representative members of the engineering and production staffs of various oil companies, as to present trends in drilling practice and changes in methods and equipment that will be needed to meet future conditions.

Use of Natural Gas in Oil Refineries—F. S. Kelly, Jr. *Oil and Gas Journal*, June 19, 1941, pp. 52-56. Improvements in the art of refining have resulted in heat requirements of refineries steadily increasing, due to greater volumes of still gases being utilized to make higher octane gasolines.

Pressure Maintenance of Gulf Coast Producing Zones—E. O. Bennett. *Oil and Gas Journal*, June 5, 1941, pp. 55, etc. Several years of continuous pressure-maintenance operations in deep, high-pressure Gulf Coast oil fields have definitely shown that such fields may be operated most economically under production methods where gas is returned to the formation where it originated.

The Problem of the Unnecessary Well—An analysis in booklet form for the consideration of oil producers, landowners, royalty owners and public officials. Discusses use of steel in the oil industry. The report was made on May 13, 1941, and carries a thorough discussion of the causes of unnecessary drilling, and offers a constructive plan to improve the situation. Report is published by the Independent Petroleum Association of America, 704 Thompson Bldg., Tulsa, Okla., and is being widely distributed among oil operators and landowners.

Nomographs for Thermal Conductivities of Gases and Vapors—D. S. Davis. *Industrial and Engineering Chemistry*, May, 1941, pp. 675-678.

How to Find Heat Losses from Bare Pipe to Still Air—G. A. Hawkins. *Industrial Power*, May, 1941, pp. 62-63. Chart is designed for rapid calculation of heat loss in determining if insulation is needed on bare horizontal pipes carrying steam or hot liquids.

The Electric Exhaust Gas Analyzer—T. A. Dunlap, *California Oil World*, May 1, 1941, pp. 10-12. The past several years has seen instrumentation increasingly applied to internal combustion engine operation. Although the best example of this has probably been in the automotive engine field where the trouble shooter now has laboratory equipment in his shop for diagnosing engine ills, the heavy duty engine operator now has found the newer instruments useful in embellishing the story told by the thermometer, pressure gage, and engine indicator. This paper deals with an exhaust gas analyzer that developed in the automotive engine field. Use of this instrument has proved advantageous in several ways on heavy duty engines. The purpose of this brief discussion is to outline those usages and point out some operation aids with respect to the instrument itself that have developed.

Practices Adopted in Pipe-Line Construction and Maintenance—P. Reed. *Oil and Gas Journal*, May 15 1941, pp. 42-43. Because of the attention given by construction and maintenance men to small items having an important effect on costs, some of these points which are currently discussed regarding inspection practices, hoist equipment, light-truck equipment, and maintenance of construction equipment are considered.

Additional Compressor and Dehydration Facilities on Major Gas Line—F. S. Young. *Petroleum Engineer*, June, 1941, pp. 27-30. New 3900-hp. Hansford station and dehydration plant at Sneed are elements in expansion program of Panhandle Eastern Pipe Line Co.

A Rational Approach to Cathodic Protection Problems—G. N. Scott. *Petroleum Engineer*, June, 1941, pp. 59, etc. Part 2.

Properties of Hydrocarbons Found in Natural Gas—R. W. Machen. *Petroleum Engineer*, June, 1941, pp. 79, etc. A review of basic organic chemistry centered on natural gas constituents.

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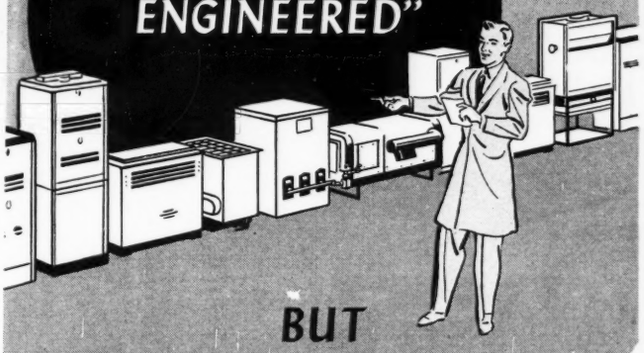

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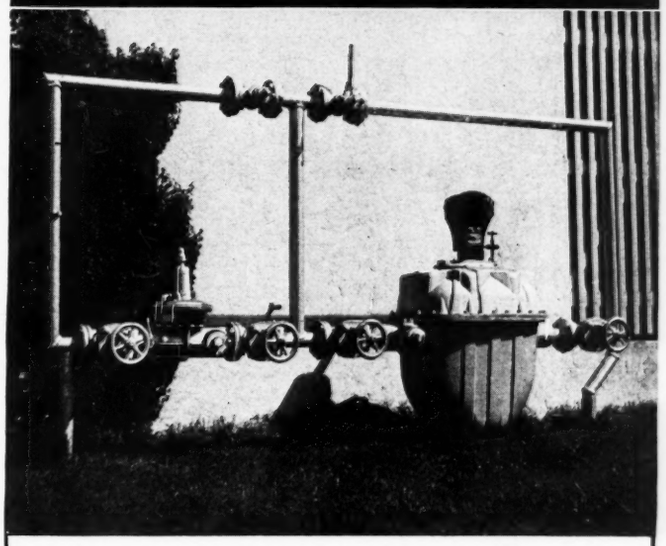

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GAS CONTROL SINCE 1892

Fuel Flue Gases Handbook Will Soon Be Reprinted

BECAUSE of the demand for the handbook, "Fuel Flue Gases," published last year by the American Gas Association under the auspices of the Technical Section's Chemical Committee, a new edition will be printed. The entire supply of the first edition is exhausted and continued interest in the publication has prompted the Association to take steps to produce a new and revised edition.

Louis Shnidman, chairman of the subcommittee which directed publication of the first edition, will also be in charge of the new handbook. Mr. Shnidman has requested that anyone who has noted errors of omission or commission or who has any suggestions concerning the book, to communicate promptly with him at the Rochester Gas & Electric Corp., Rochester, N. Y. It is hoped that all corrections will have been made by the end of August so that printing can begin immediately after Labor Day.

■ ■

John Zink Co., Tulsa, Okla., Moves Into New Offices

John Zink Co., Tulsa, Okla., manufacturers of burners, floor furnaces and unit heaters, has announced the new location of their office in Dallas, Texas, as being 3412 Ross Ave. Former location of the company was 2405 So. Harwood. C. E. Morris is manager of the Dallas branch.

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New Schedule of Inspection Fees Effective October 1

SINCE Jan. 1, 1941, separate listings have been shown in the Directory of Approved Gas Appliances and Listed Accessories for manufacturers and for distributors, jobbers and dealers. This followed the required use of the words "Manufactured For" before the name of the company appearing on name plates of all appliances and accessories sold under a dealer's name.

Thorough consideration was given at the last meeting of the Laboratories Managing Committee to suggestions received for modification of inspection fees covering extensions of approval or listing to distributors, jobbers and dealers. Study revealed that present fees were not adequate to cover costs of such services. This was particularly true in instances where no plant inspection was required for the purpose of extending or renewing approval. Therefore, a revised schedule of inspection fees, giving due recognition to these conditions, was approved by the Laboratories Managing Committee. These apply to both appliances and accessories.

The new schedule of inspection fees will become effective Oct. 1, 1941. In order to notify all interested manufacturers, letters have already been sent them, enclosing a schedule of the new fees. Anyone desiring further information on this subject may communicate with R. M. Conner, director, A.G.A. testing laboratories, 1032 East 62 street, Cleveland, Ohio.

■ ■

United Gas Corp. Changes Operating Organization

The following changes in the operating organization of the United Gas Corp. were recently announced:

The East Texas division, as previously constituted, was dissolved. The Marshall, Longview, Mineola, Jacksonville, Nacogdoches, and Huntsville districts were consolidated with what was formerly known as the West Texas division in the establishment of the New Northwest division.

The Beaumont and Liberty districts were consolidated with the former Louisiana-Mississippi division in what is now known as the Eastern division.

The Childress district of the company was merged with the Wichita Falls district and is now called the Wichita Falls district, with R. W. Lindsey continuing as district manager.

■ ■

Pittsburgh Meter Company Acquires Tool Plant

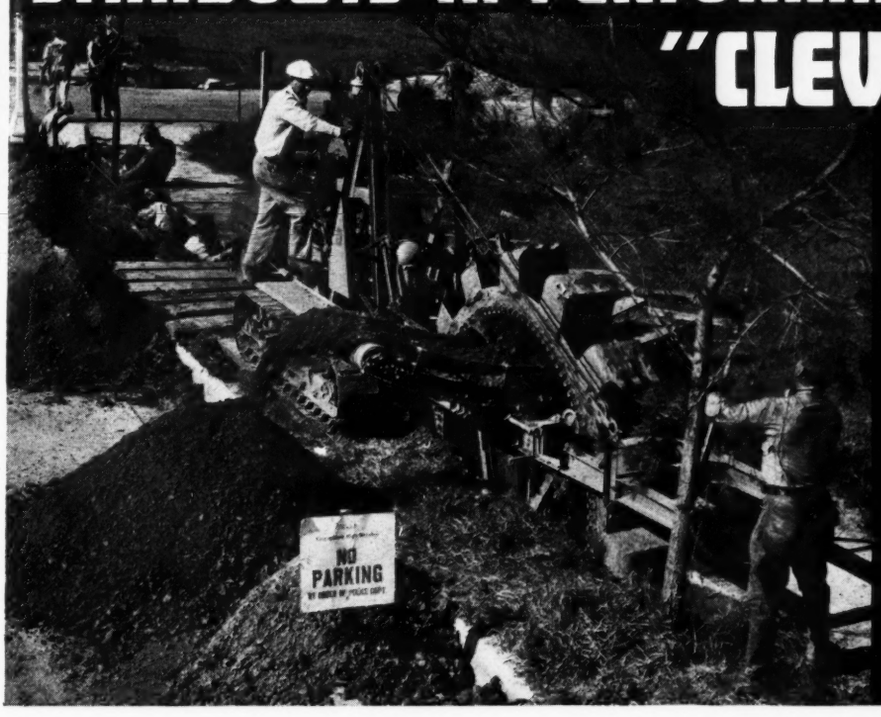
W. F. Rockwell, president of the Pittsburgh Equitable Meter Co., announced recently that his firm has acquired the assets of the Larsson Machine Tool Works of Berkeley, Calif. This acquisition provides the Pittsburgh firm with a modern self-contained tool plant equipped to manufacture dies, tools and special equipment. The present business will be continued and the additional facilities will be utilized for experimental work on new products which are under development.

■ ■

Petroleum Coordinator Opens Five Branch Offices

The selection of five cities as headquarters of the branch offices to be established by the Office of the Petroleum Coordinator was announced recently. The cities are New York, Chicago, Denver, Houston, and Los Angeles.

STANDOUTS In PERFORMANCE— "CLEVELANDS"!



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Clevelands are supreme in their ability to get *in* where the pipe has to be laid and to get the job *done* with maximum speed and lowest cost.

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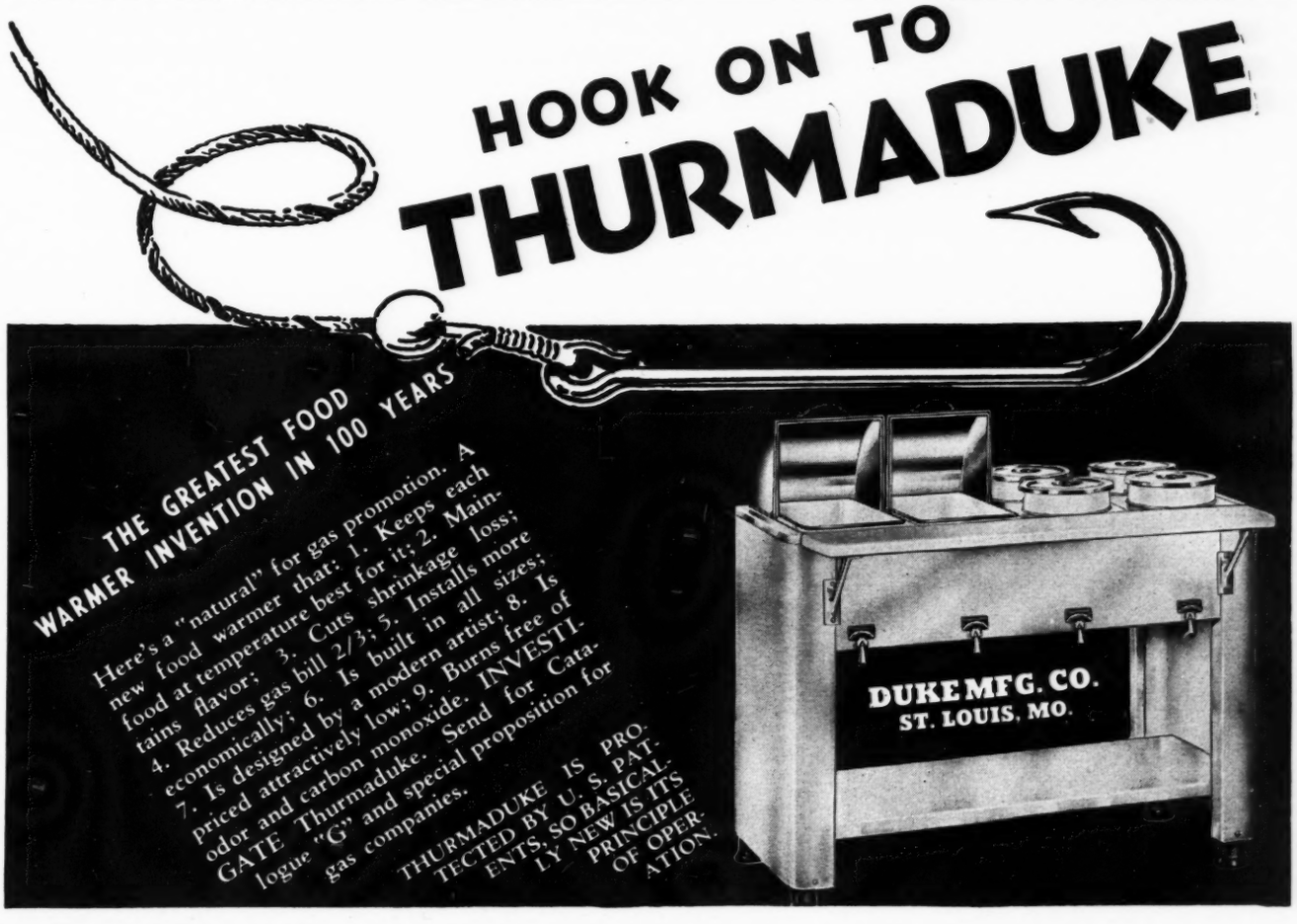

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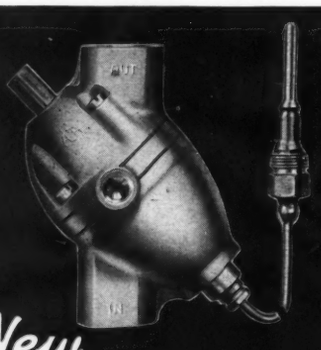

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MILWAUKEE WISCONSIN

Gas Producing Possibilities of Dakotas Arouses Interest

GROWING interest in North and South Dakota as a possible major gas and oil producing section is shown by the leasing of several million acres of land to independent operators and major oil companies.

The total number of acres under lease in the two states is approximately 8,000,000 acres. The Rural Credits department of South Dakota has reported the leasing of more than 1 500,000 acres of state-owned land. Five hundred thousand acres of this land was leased to the Carter Oil Co., Tulsa, Okla. This land is located in 11 counties west of the Missouri river.

Area of most activity is the central third of the two states which contains one of the great geological basins in the United States, the Lemmon geosyncline. Natural gas wells in central South Dakota near Pierre, in the northwestern corner of South Dakota and in southwestern North Dakota, have also attracted much attention.

A measure passed by the South Dakota legislature this year to create an oil and gas board to regulate explorations was blocked from becoming effective July 1 when a petition to refer it to the voters of the state was filed. The measure will now be voted on by the electorate in the general election in the fall of 1942.

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Camden Gas Corp. May Be Purchased for $226,000

Application for the purchase of the distribution system of the Camden Gas Corp., Camden, Ark., by the Arkansas-Louisiana Gas Co., at a price of $226,000, has been filed with the Arkansas State Department of Public Utilities.

The agreement to purchase, which is attached to the application, is signed by attorneys for holders of $75 000 of first mortgage bonds and $25,000 of second mortgage bonds of the Camden Gas Corp. The Arkansas-Louisiana Gas Co. agrees to inaugurate the rate schedule recently ordered for other towns in the system.

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New Albany, Ind., Changes To Natural Gas System

Distribution of natural gas to approximately 1800 customers in the east section of New Albany, Ind., was begun June 23, according to an announcement made by J. A. Mishler, division manager of the Public Service Co. of Indiana.

Two weeks were required to complete the changeover from manufactured to natural gas in that area, after which the new fuel was introduced in the central section, which includes most of the downtown business district.

By dividing the city into three zones and introducing the new gas a step at a time, the company accomplished the task of adjusting appliances with the least possible inconvenience to its 4300 local patrons. The new gas contains approximately 900 B.t.u. per cu. ft. in comparison with the 570 B.t.u. in the manufactured product used previously. Complete instructions regarding the use of appliances during the changeover period were mailed to each customer's home.

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Duke Mfg. Co., St. Louis, Moves Into New Plant

The Duke Manufacturing Co., St. Louis, Mo., manufacturers of cooking and serving equipment since 1925, has moved into its new and enlarged plant following its completion on July 8.

Construction of the plant, which has a frontage of 178 ft. on Broadway and 181 ft. on Monroe, began last January. The office and display rooms occupy a space of 40 ft. by 178 ft. Walls of these rooms are of glazed tile and are insulated with soundproof celotex ceiling.

Fluorescent lighting is used throughout with those in the drafting room of the adjustable type. The outside of the building is of buff brick trimmed in brown.

Behind the offices is the new factory building of glass block construction which is provided with forced air controlled by 17 fans. The paint room is a separate building inside the factory building. In this room is a gas-fired bake oven over 20 ft. long and a water spray curtain for the spray booth. All air is forced into this room and filtered.

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Magnolia Petroleum Begins Natural Gas Line in Texas

Magnolia Petroleum Co. has announced work on a natural gas pipe line from the West Ranch pool, Jackson county, Texas, with a completion date of November 1. The company withdrew from this activity in 1929 with the disposal of transportation systems and sales and purchase contracts to the United Gas Pipe Line Co.

One-hundred-ninety miles in length, the new line will be 160 miles of 14-in. and 30 miles of 16-in. welded line.

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Servel Buys Gas Division of American Bosch Corp.

Servel, Inc., Evansville, Ind.. has purchased the Gas Appliance Division of the American Bosch Corp., according to an announcement made by Louis Ruthenburg, president of Servel, Inc.

The purchase includes all of the facilities now located at Springfield, Mass., for the manufacture of gas water heaters. These facilities are being moved to Evansville.

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Malicious Utility Sabotage Is Declared a Felony

A measure which declares it a felony to maliciously destroy the properties of a public utility company, and which was passed by the Michigan legislature recently, has been signed and enacted into law by Gov. Murray D. Van Wagoner.

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Design—Construction—Reports
Court Work

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